

MONROE TWP MUNICIPAL WELLS #4 & #5  
MONROE TWP/GLOUCESTER COUNTY  
NEW JERSEY  
EPA # NJD980769699

The Monroe Township Municipal Wells #4 & #5 are located respectively on Washington Avenue and Chestnut Street, Williamstown, Gloucester County. These wells have an intervening distance of 1200 feet and are owned and operated by the Monroe Township Municipal Utilities Authority (MTMUA).  
→ 609/629-1444; OPER. DEPT. (609/629-7586) (GLOUCESTER)

A program for sampling raw water sources throughout the state revealed mercury contamination in Monroe Municipal Wells #4 & #5 on June 21, 1976. The levels of mercury that were in the municipal water system were as high as 10.8 ppb. This level is far in excess of the maximum contaminant level for total mercury of 2.0 ppb promulgated by the USEPA pursuant to the Safe Drinking Water Act.

These wells are underlain by the Quarternary Bridgeton Formation which is characterized by gravel and sand in part solidified by iron oxide. The water bearing unit in which Well #4 & #5 are located is the Cohansey Aquifer. The depth of Well #4 and #5 are 106 and 160 feet respectively. There are also two surface water swails leading to the Squankum Branch and the Hospitality Branch of Great Egg Harbor River.

The sampling and analysis of an individual domestic well owned by the Monroe Township Board of Education revealed total mercury as high as 3.6 ppb on July 17, 1986. This well is located in a maintenance building adjacent to the Williamstown High School on Clayton Avenue in Williamstown. This well is also located at the South-West limit of the MTMUA water supply system.

Immediately after the discovery of mercury contamination in the public water system, Well #4 was taken out of service and was retained only for emergency situations. Well #5 was kept in service because levels of mercury experienced at this well were at or slightly below the maximum contaminant level. Since that time the level of mercury has steadily decreased in both wells.

At present it is not known conclusively where the source of the contamination is located. However, there are two potential sources. The first potential source is the Williamstown Substation of the Atlantic City Electric Company. This site is located adjacent to the high school property on Clayton Road. The second, and more probable source of contamination is an inactive gravel pit also located on Clayton Road. This site has had unauthorized dumping of assorted solid waste over many years since its closure.



It is recommended that this site be referred to NJDEP/Division of Water Resources for a comprehensive sampling and analysis of the ground water in Williamstown. This will provide additional information to determine the extent and source of the contamination. All environmental sampling undertaken by the NJDEP should be closely coordinated and integrated with the Gloucester County Health Department which is also aware of this problem.

Submitted by:

Frank Faranca, HSMS IV  
NJDEP/DHWM/BPA  
MSCA Project

Hours worked: 47

FF:mz



# Preliminary Assessment

Monroe Township Municipal Wells #4 & #5

#4 - Washington Avenue

#5 - Chestnut & Water Streets

Monroe Township/Gloucester County

New Jersey

EPA #NJD980769699



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
NJ D980769699

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Monroe Township Municipal Wells #4 & #5		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER Washington Ave; Chestnut & Water St.			
03 CITY Monroe Township	04 STATE NJ	05 ZIP CODE 08094	06 COUNTY Gloucester	07 COUNTY CODE 08	08 CONG DIST
09 COORDINATES LATITUDE 39 38 55		LONGITUDE 75 03 40			
10 DIRECTIONS TO SITE (Starting from nearest public road) From Trenton, take Route 295 South to Route #42. Follow Route #42 South to Williamstown.					

III. RESPONSIBLE PARTIES

01 OWNER (if known) Monroe Twp. M.U.A.		02 STREET (Business, mailing, residential) 372 South Main Street			
03 CITY Williamstown	04 STATE NJ	05 ZIP CODE 08094	06 TELEPHONE NUMBER 1609 629-7586	George Cassabone	
07 OPERATOR (If known and different from owner)		08 STREET (Business, mailing, residential)			
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER		
13 TYPE OF OWNERSHIP (Check one) <input type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL: _____ (Agency name) <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER: _____ (Specify) <input type="checkbox"/> G. UNKNOWN					
14 OTHER OPERATOR NOTIFICATION ON FILE (Check all that apply) <input type="checkbox"/> A. RCRA 3001 DATE RECEIVED: _____ MONTH DAY YEAR <input type="checkbox"/> B. UNCONTROLLED WASTE SITE (RCRA 103 c) DATE RECEIVED: _____ MONTH DAY YEAR <input type="checkbox"/> C. NONE					

IV. CHARACTERIZATION OF POTENTIAL HAZARD

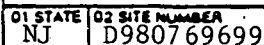
01 ON SITE INSPECTION <input type="checkbox"/> YES DATE 2 / 8 / 77 <input type="checkbox"/> NO MONTH DAY YEAR		BY (Check all that apply) <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input type="checkbox"/> C. STATE <input type="checkbox"/> D. OTHER CONTRACTOR <input type="checkbox"/> E. LOCAL HEALTH OFFICIAL <input type="checkbox"/> F. OTHER: _____ (Specify) CONTRACTOR NAME(S): _____			
02 SITE STATUS (Check one) <input type="checkbox"/> A. ACTIVE <input type="checkbox"/> B. INACTIVE <input type="checkbox"/> C. UNKNOWN		03 YEARS OF OPERATION 1951   1976 BEGINNING YEAR ENDING YEAR <input type="checkbox"/> UNKNOWN			
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED Inorganic mercury					
05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION Inorganic mercury was detected in public supply wells #4 and #5 as high as 6.4 ppb on 7/19/76. Mercury was also detected in a potable well at the limit of the Monroe MUA Public Water Supply System.					

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents) <input type="checkbox"/> A. HIGH (Inspection required promptly) <input type="checkbox"/> B. MEDIUM (Inspection required) <input type="checkbox"/> C. LOW (Inspect on time available basis) <input type="checkbox"/> D. NONE (No further action needed. Complete current disposition form)			
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VI. INFORMATION AVAILABLE FROM

01 CONTACT George Cassabone, Superintendent Monroe Twp. M.U.A.		02 OF (Agency/Organization)		03 TELEPHONE NUMBER (609) 629-7586	
04 PERSON RESPONSIBLE FOR ASSESSMENT Frank Faranca, HSMS IV		05 AGENCY NJDEP	06 ORGANIZATION DHWM/BPA	07 TELEPHONE NUMBER (609) 633-2219	08 DATE 04 / 14 / 87 MONTH DAY YEAR



EPA FORM 2070-12 (7-81)



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE NJ 02 SITE NUMBER D980769699

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION 02 ☐ OBSERVED (DATE: 7-19-76 ) ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 8254 04 NARRATIVE DESCRIPTION

Public supply wells #4 and #5 were sampled in 1976 and mercury was detected as high as 6.4 ppb. More recently, a potable well was found to contain 3.6 ppb on 7/17/86.

Attachment B3, B6 and C

01 ☐ B. SURFACE WATER CONTAMINATION 02 ☐ OBSERVED (DATE: ) ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

Surface and subsurface discharge may have contributed to surface water contamination of the Squankum Branch and the Hospitality Branch of the Great Egg Harbor River.

Map 1

01 ☐ C. CONTAMINATION OF AIR 02 ☐ OBSERVED (DATE: ) ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

No potential exists for the mercury in the ground water to contaminate the air.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS 02 ☐ OBSERVED (DATE: ) ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

No potential exists for the fire/explosive conditions due to the nature of the contaminant.

01 ☐ E. DIRECT CONTACT 02 ☐ OBSERVED (DATE: ) ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

No potential exists for direct contact with the mercury contaminated ground water.

01 ☐ F. CONTAMINATION OF SOIL 02 ☐ OBSERVED (DATE: ) ☐ POTENTIAL ☐ ALLEGED  
03 AREA POTENTIALLY AFFECTED: (ACRES) 04 NARRATIVE DESCRIPTION

A potential for soil contamination exists due to the documented mercury contamination found in the ground water.

Attachment B & C

01 ☐ G. DRINKING WATER CONTAMINATION 02 ☐ OBSERVED (DATE: ) ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

Public supply wells #4 and #5 were sampled and analysis revealed inorganic mercury in excess of the safe drinking water standards. Well #4 is currently not in use.

Attachment B1-B6

01 ☐ H. WORKER EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: ) ☐ POTENTIAL ☐ ALLEGED  
03 WORKERS POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

A potential exists for worker exposure/injury because well #4 is utilized in emergency situations.

Attachment B, C

01 ☐ I. POPULATION EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: ) ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 8254 04 NARRATIVE DESCRIPTION

Approximately 32% of Monroe Township is not on public water supply or 8254 people.

Attachment H



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE NJ 02 SITE NUMBER D980769699

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

Surface water drainage and ground water discharge may potentially impact aquatic and terrestrial flora with mercury contamination.

Map 1

01 ☐ K. DAMAGE TO FAUNA 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION (Include Name(s) of Species)

Surface water drainage and ground water discharge may potentially impact aquatic and terrestrial fauna with mercury contamination.

Map 1

01 ☐ L. CONTAMINATION OF FOOD CHAIN 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

The mode of action of mercury in organisms is that it is lipio soluble thus making it a potential agent for contaminating the food chain.

Attachment G

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED

(Sinks, runoff, standing liquids, leaking drums)

03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_ 04 NARRATIVE DESCRIPTION

A potential exists for unstable mercury waste to be contaminating the ground water.

Attachment B & C

01 ☐ N. DAMAGE TO OFFSITE PROPERTY 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

Analysis of a potable well owned by the Monroe Twp. Board of Education in July 1986 revealed mercury at 3.6 ppb which is in excess of the maximum contaminant level for safe drinking water.

Attachment C

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

Sampling and analysis of standing water in a storm sewer culvert which accepts well #4 overflow revealed mercury below detectable limits.

Attachment B-30

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

A potential exists for unauthorized dumping of mercury waste to be contributing to the present ground water contamination.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

Approximately 8294 people are not hooked up to the Municipal Water Supply and are at risk of being exposed to the contaminated ground water through the use of their domestic wells.

III. TOTAL POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

IV. COMMENTS

Sampling and analysis of potable water from the surrounding homes along Clayton and Janvier Roads is recommended.

V. SOURCES OF INFORMATION (Cite specific references, e.g., State files, laboratory analysis, reports)

See reference sheet for list of attachments.

# **Dangerous Properties of Industrial Materials**

Sixth Edition

**N. IRVING SAX**

Assisted by:

Benjamin Feiner/Joseph J. Fitzgerald/Thomas J. Haley/Elizabeth K. Weisburger



VAN NOSTRAND REINHOLD COMPANY  
NEW YORK • LONDON • TORONTO • MONTREAL • MUMBAI

ATTACHMENT E



**TOXICITY DATA:** 3 **CODEN:**

Aquatic Toxicity Rating: TLM96: under 1 ppm  
 WQCHM\* 3,-,74. DOT: Poison B, Label: Poison  
 FEREAC 41,57018,76. Occupational Exposure to In-  
 organic Mercury recm std: Air: TWA 0.05 mg(Hg)/  
 m<sup>3</sup> NTIS\*\*. Reported in EPA TSCA Inventory, 1980.  
**THR:** A poison. See also mercury compounds and bro-  
 mides.

**Disaster Hazard:** When heated to decomp it emits very  
 tox fumes of Br<sup>-</sup> and Hg.

**Incomp:** Indium, Na, K.

**MERCURY(II) BROMIDE complex with TRIS(2-ETHYLHEXYL) PHOSPHITE**

CAS RN: 64011376 NIOSH #: TH 2275000  
 mf: C<sub>24</sub>H<sub>51</sub>O<sub>3</sub>P·Br<sub>2</sub>Hg; mw: 779.13

**SYN:** PHOSPHOROUS ACID, TRIS(2-ETHYLHEXYL) ESTER, COMPLEX  
 WITH MERCURY(II) BROMIDE (1:1)

**TOXICITY DATA:** 3 **CODEN:**  
 ipr-mus LDLo: 31 mg/kg CBCCT\* 7,790,55

Occupational Exposure to Inorganic Mercury recm std:  
 Air: TWA 0.05 mg(Hg)/m<sup>3</sup> NTIS\*\*.

**THR:** HIGH ipr. See also mercury compounds and bro-  
 mides.

**Disaster Hazard:** When heated to decomp it emits very  
 tox fumes of PO<sub>2</sub>, Br<sup>-</sup> and Hg.

**MERCURY(II) CHLORIDE complex with TRIS(2-ETHYLHEXYL) PHOSPHITE**

CAS RN: 63981497 NIOSH #: TH 2450000  
 mf: C<sub>24</sub>H<sub>51</sub>O<sub>3</sub>P·Cl<sub>2</sub>Hg; mw: 690.21

**SYN:** PHOSPHOROUS ACID, TRIS(2-ETHYLHEXYL) ESTER, COMPLEX  
 WITH MERCURY(II) CHLORIDE (1:1)

**TOXICITY DATA:** 3 **CODEN:**  
 ipr-mus LDLo: 63 mg/kg CBCCT\* 7,791,55

Occupational Exposure to Inorganic Mercury recm std:  
 Air: TWA 0.05 mg(Hg)/m<sup>3</sup> NTIS\*\*.

**THR:** HIGH ipr. See also mercury compounds.

**Disaster Hazard:** When heated to decomp it emits very  
 tox fumes of Hg, Cl<sup>-</sup> and PO<sub>2</sub>.

**MERCURY(I) CHLORITE**

mf: ClHgO<sub>2</sub>; mw: 268.04

**THR:** Unstable when dry (explodes spontaneously). A  
 poison. See also mercury compounds, chlorides.

**Disaster Hazard:** When heated to decomp it emits very  
 tox fumes of Hg and Cl<sup>-</sup>.

**MERCURY COMPOUNDS, INORGANIC**

**THR:** Mercury is a general protoplasmic poison; after  
 absorption it circulates in the blood and is stored in  
 the liver, kidneys, spleen and bone. It is eliminated  
 in the urine, feces, sweat, saliva and milk. In industrial  
 poisoning, the principal effect is upon the CNS and  
 upon the mouth and gums. Colitis has been reported  
 frequently; a nephritis or nephrosis is rarely reported.

Fulminate of mercury rarely produces symptoms of  
 systemic poisoning, but frequently causes a dermatitis.  
 The cardinal symptoms of industrial mercury poisoning  
 are stomatitis, tremors, and psychic disturbances. Us-  
 ually the first complaints are of excessive salivation and  
 pain on chewing; in severe cases there may be gingivitis,  
 with loosening of the teeth, and a dark line on the  
 gum margins, resembling the "lead line." In slow poi-  
 soning the salivation may be absent, and the only com-  
 plaint dryness of the throat and mouth. Tremor and  
 psychic disturbances are commonly seen in the slow  
 chronic form of the poisoning; the tremor is of the  
 intention type, and may be seen when the patient  
 spreads the outstretched fingers or protrudes the  
 tongue, or attempts to perform specified movements.  
 Muscles of the face, hands and arms are chiefly affected.  
 In more severe cases there may also be convulsive or  
 shaking movements; writing is frequently illegible. Hy-  
 peractive kneejerks and scanning speech may be present  
 in advanced cases. The psychic disturbance (so called  
 "erethism") includes such changes as loss of memory,  
 insomnia, lack of confidence, irritability, vague fears  
 and depression.

The dermatitis produced by fulminate of mercury  
 takes the form of small, discrete ulcers on the exposed  
 parts; and is usually accompanied by conjunctivitis and  
 inflammation of the mu mem of the nose and throat.  
 In hmns it is readily absorbed via respiratory tract  
 (elemental mercury vapor, mercury composed dusts)  
 intact skn, and G.I. tract, although occasional inciden-  
 tal swallowing of metallic Hg is without harm. Spilled  
 and heated elemental Hg is particularly hazardous. A  
 number of mercury compounds, in addition to the ful-  
 minate, can cause skn irr and be absorbed through  
 the skn. They are strong allergins; common air contami-  
 nants.

**Acute Tox:** Sol salts have violent corrosive effects on skn  
 and mu mem; severe nausea, vomiting, abdominal pain,  
 bloody diarrhea, kidney damage; death usually within  
 10 days.

**Disaster Hazard:** Dangerous; when heated to decomp  
 emits tox fumes of Hg.

**MERCURY COMPOUNDS, ORGANIC**

**THR:** The customary grouping of all organic mercurials  
 in a single category is not fully justified by the toxicity  
 of the compounds. Alkyl mercurials have very high  
 toxicity; aryl compounds, particularly the phenyls, are  
 much less toxic, and the organomercurials used in ther-  
 apeutics are less toxic. The alkyls and aryls commonly  
 cause skn burns and other forms of irr, and both can  
 be absorbed through the skn. Fatal poisoning has oc-  
 curred due to exposure to alkyl mercurials and perma-  
 nent damage to the brain has been reported. Extensive  
 human observation on exposure to the phenyl mercuri-  
 als have shown no greater toxicity than is caused by  
 metallic mercury. In fact, up to the present time there  
 has not been an authenticated case of occupational poi-  
 soning due to the phenyl mercurials reported in the

# THE MERCK INDEX

AN ENCYCLOPEDIA OF  
CHEMICALS AND DRUGS

NINTH EDITION

*ELSAADY*

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1976

ATTACHMENT F

**5742. Mercury.** Hydrargyrum; liquid silver; quicksilver. Hg; at. wt 200.59; at. no. 80; valences 1, 2. Group 2b element. Abundance in earth's crust 0.5 ppm. Natural iso-

topes: 202 (29.80%); 200 (23.13%); 199 (16.84%); 201 (13.22%); 198 (10.02%); 204 (6.85%); 196 (0.146%); known isotopes range in mass number from 189 to 206. Obtained by roasting cinnabar (mercuric sulfide). *Reviews:* Roberts, *Advan. Inorg. Chem. Radiochem.* 11 (Academic Press, New York, 1968) pp 309-339; Aylett, "Group IIB" in *Comprehensive Inorganic Chemistry* vol. 3 (Pergamon Press, Oxford, 1973) pp 187-328.

Silver-white, heavy, mobile, liquid metal; slightly volatile at ordinary temp; solid mercury is a tin-white, ductile, malleable mass which may be cut with a knife. mp  $-38.87^{\circ}$ ; bp  $356.72^{\circ}$ ;  $d_{25}^{25}$  13.534;  $C_p$  (25°) 6.687 cal/mole deg. Vapor pressure (25°):  $2 \times 10^{-3}$  mm; heat of vaporization (25°): 14.652 kcal/mole; Busey, Giaque, *J. Am. Chem. Soc.* 75, 806 (1953). Surface tension (25°): 484 dynes/cm; electrical resistivity (20°): 95.76  $\mu$ ohm cm. When pure does not tarnish on exposure to air at ordinary temp, but when heated to near the boiling point slowly oxidizes to HgO. Forms alloys with most metals except iron and combines with sulfur at ordinary temp.  $E^{\circ}$  (aq) Hg/Hg $^{2+}$   $-0.854$  V;  $E^{\circ}$  (aq) 2 Hg/Hg $_2^{2+}$   $-0.789$  V. Soly in water (25°): 0.28  $\mu$ moles/l; data on soly in organic solvents: Spencer, Voigt, *J. Phys. Chem.* 72, 464 (1968). Reacts with HNO $_3$  and hot, concd H $_2$ SO $_4$ ; does not react with dil HCl, cold H $_2$ SO $_4$ , or alkalis. Reacts with ammonia solns in air to form Hg $_2$ NOH, *Millon's base*. Mercury salts when heated with Na $_2$ CO $_3$  yield metallic Hg and are reduced to metal by H $_2$ O $_2$  in the presence of alkali hydroxide. Cu, Fe, Zn and many other metals ppt metallic Hg from neutral or slightly acid solns of mercury salts. Soluble ionized mercuric salts give a yellow ppt of HgO with NaOH and a red ppt of HgI $_2$  with alkali iodide. Mercurous salts give a black ppt with alkali hydroxides and a white ppt of calomel with HCl or sol chlorides. They are slowly dec by sunlight. *Poisonous!*

USE: In barometers, thermometers, hydrometers, pyrometers; in mercury arc lamps producing ultraviolet rays; in switches, fluorescent lamps; in mercury boilers; manuf all mercury salts, mirrors; as catalyst in oxidation of organic compds; extracting gold and silver from ores; making amalgams, electric rectifiers, mercury fulminate; also in dentistry; in determining N by Kjeldahl method, for Millon's reagent; as cathode in electrolysis, electroanalysis, and many other uses. Also in pharmaceuticals, agricultural chemicals, anti-fouling paints. *Human Toxicity:* Readily absorbed via respiratory tract (elemental mercury vapor, mercury compd dusts), intact skin, and G.I. tract, although occasional incidental swallowing of metallic mercury is without harm. Spilled and heated elemental mercury is particularly hazardous. *Acute:* sol salts have violent corrosive effects on skin and mucous membranes; severe nausea, vomiting, abdominal pain, bloody diarrhea; kidney damage; death usually within 10 days. *Chronic:* inflammation of mouth and gums, excessive salivation, loosening of teeth; kidney damage; muscle tremors, jerky gait, spasms of extremities; personality changes, depression, irritability, nervousness. Phenyl and alkyl mercurials can cause skin burns and be absorbed by the skin. Burning sensation is delayed several hours and thus gives no warning. Alkyls have affinity for brain tissue and may cause permanent damage. Phenyls are no more toxic than inorganic Hg. *Antidote:* Dimercaprol (BAL). See E. Browning, *Toxicity of Industrial Metals* (Appleton-Century-Crofts, New York, 2nd ed., 1969) pp 226-242.

# **PESTICIDES IN THE ENVIRONMENT**

Volume 1, Part I (In Two Parts)

*Edited by*

**ROBERT WHITE-STEVENSON**

CHAIRMAN, BUREAU OF CONSERVATION AND  
ENVIRONMENTAL SCIENCE  
COLLEGE OF AGRICULTURE AND ENVIRONMENTAL SCIENCE  
RUTGERS UNIVERSITY - THE STATE UNIVERSITY  
NEW BRUNSWICK, NEW JERSEY

MARCEL DEKKER, INC., New York 1971

ATTACHMENT G

**3. Mode of Action.** Little critical work has been done on the mode of action of the chloronitrobenzenes. Brown (18) considers these compounds as vapor fungistats which, however, do not stop hyphal growth. Rich (117) states that pentachloronitrobenzene may be a competitive inhibitor of inositol, and essential growth substance for fungi.

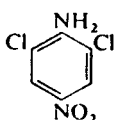
**4. Biological Activity.** The chloronitrobenzenes are fungistats effective principally against soil fungi such as *Botrytis*, *Rhizoctonia*, *Mucor*, *Trichoderma*, and *Fusarium*. They act largely by fumigation and retard germination and colony growth as well as suppressing sporulation. These compounds are also useful in delaying sprouting of stored potatoes (19).

**5. Toxicology.** The oral LD<sub>50</sub> values to the rat of dinitrotrichlorobenzene 500, and pentachloronitrobenzene of 1650 mg/kg suggest that these compounds are of low to moderate toxicity. Tetrachloronitrobenzene has been fed to rats at 100 mg/kg daily with no apparent ill effects, and rats survived two-year feeding studies with pentachloronitrobenzene at 2500 ppm.

#### G. Mercury Compounds

**1. Introduction and Chemistry.** The development of mercurial fungicides was an outgrowth of the usefulness of mercuric chloride as a bactericide. Mercuric chloride, HgCl<sub>2</sub>, was first tested as a seed treatment on cereals by Kellerman and Swingle in 1890 (71) and by Hiltner in 1915 (59) who paved the way for the concept of protective seed dressings by observing that mercury treatment would prevent reinfestation by dormant mycelium of *Fusarium* disease of rye. However, the very poisonous nature of mercuric chloride prevented its widespread use until I. G. Farbenindustrie introduced an organic mercurial "chlorphenol mercury" ClC<sub>6</sub>H<sub>3</sub>OH·Hg·OSO<sub>3</sub>Na in 1915 (87), for use as a liquid seed disinfectant. From that time on, a succession of organic mercurials of varying chemical structures have been marketed as shown below. Organic mercury dusts for dry seed treatment were introduced in 1924 with *o*-nitrophenol mercury HOC<sub>6</sub>H<sub>3</sub>NO<sub>2</sub>·HgOH. Dust treatments with organic mercurials are not only unpleasant but also are hazardous, and slurry treatments became popular with the introduction, about 1930, of a new type of organic mercurial, represented by *methoxyethylmercury chloride* CH<sub>3</sub>OCH<sub>2</sub>CH<sub>2</sub>Hg·Cl, developed for use as a slurry treatment or its corresponding silicate used as a dry seed treatment.

The organomercury fungicides can be represented by the general formula RHgX where R = aryl-, aryloxy-, alkyl-, or alkoxyethyl-, and X is an anionic group such as chloride, acetate, lactate, urea, carbamate, hydroxy, or related structure as shown in Table 1-3. The nature of the



2,4-dichloro-6-nitroaniline

TABLE 1-3  
ORGANOMERCURY FUNGICIDES

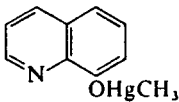
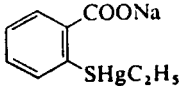
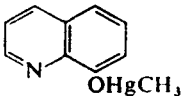
<i>Phenyl mercurials</i>		
Phenyl mercuric acetate	$C_6H_5HgOCOCH_3$	Seed, turf, foliage, and industrial fungicide
Tolyl mercuric acetate	$CH_3C_6H_4HgOCOCH_3$	
Phenyl mercuritriethanolammonium lactate	$C_6H_5HgN(C_2H_4OH)_2 \cdot OC(O)CH(OH)CH_3$	Scab treatment on fruits, ornamentals, turf
Phenyl mercurimonoethanolammonium acetate	$C_6H_5HgNH_2 \cdot C_2H_4OH \cdot OC(O)CH_3$	Scab treatment on fruits, ornamentals
Phenyl mercury urea	$C_6H_5HgNHC(O)NH_2$	Seed treatment
Phenyl mercuric dimethyldithiocarbamate	$C_6H_5HgSC(S)N(CH_3)_2$	Slimicide for paper mills and mold retardant for paper
<i>Phenoxy mercurials</i>		
Hydroxy mercurichlorophenol	$ClC_6H_4OHgOH$	Seed, bulb, turf, foliage treatment
Hydroxy mercurinitrophenol	$O_2NC_6H_4OHgOH$	Disinfectant for potatoes
Methyl mercury 8-hydroxyquinolate		Seed fungicide
Ethyl mercurithiosalicylic acid		Seed and bulb fungicide
<i>Alkyl mercurials</i>		
Methoxyethylmercuric chloride	$CH_3OCH_2CH_2HgCl$	Seed treatment
Ethylmercuric chloride	$C_2H_5HgCl$	Seed treatment
Ethylmercuric acetate	$C_2H_5HgOC(O)CH_3$	Slimicide for paper mills
1-Acetoxymercuri-2-hydroxyethanol	$HOC_2H_4HgOC(O)CH_3$	Seed treatment, turf, soil
Methylmercuric dicyandiamide	$CH_3HgNHC(=NH)NHCN$	Seed treatment
Ethylmercury 2,3-dihydroxypropyl mercaptide	$HOCH_2CH(OH)CH_2SHgC_2H_5$	Seed treatment, slimicide, soil disinfectant, paint preservative
Chloromethoxypropylmercuric acetate	$ClCH_2OC_3H_6HgOC(O)CH_3$	

TABLE 1-3  
ORGANOMERCURY FUNGICIDES

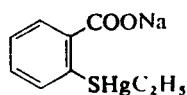
*Phenyl mercurials*

Phenyl mercuric acetate	$C_6H_5HgOCOCH_3$	Seed, turf, foliage, and industrial fungicide
Tolyl mercuric acetate	$CH_3C_6H_4HgOCOCH_3$	
Phenyl mercuritriethanolammonium lactate	$C_6H_5HgN(C_2H_4OH)_3 \cdot OC(O)CH(OH)CH_3$	Scab treatment on fruits, ornamentals, turf
Phenyl mercurimonoethanolammonium acetate	$C_6H_5HgNH_2C_2H_4OH \cdot OC(O)CH_3$	Scab treatment on fruits, ornamentals
Phenyl mercury urea	$C_6H_5HgNHC(O)NH_2$	Seed treatment
Phenyl mercuric dimethyldithiocarbamate	$C_6H_5HgSC(S)N(CH_3)_2$	Slimicide for paper mills and mold retardant for paper

*Phenoxy mercurials*

Hydroxy mercurichlorophenol	$ClC_6H_4OHgOH$	Seed, bulb, turf, foliage treatment
Hydroxy mercurinitrophenol	$O_2NC_6H_4OHgOH$	Disinfectant for potatoes
Methyl mercury 8-hydroxyquinolate		Seed fungicide

Ethyl mercurithiosalicylic acid

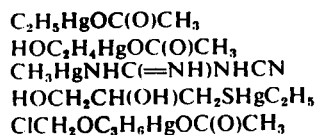


Seed and bulb fungicide

*Alkyl mercurials*

Methoxyethylmercuric chloride	$CH_3OCH_2CH_2HgCl$	Seed treatment
Ethylmercuric chloride	$C_2H_5HgCl$	Seed treatment

Ethylmercuric acetate  
1-Acetoxymercuri-2-hydroxyethan.:  
Methylmercuric dicyandiamide  
Ethylmercury 2,3-dihydroxypropyl mercaptide  
Chloromethoxypropylmercuric acetate



Slimicide for paper mills  
Seed treatment, turf, soil  
Seed treatment  
Seed treatment, slimicide, soil disinfectant, paint preservative

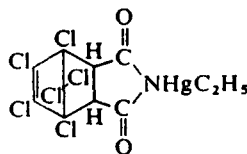
*Miscellaneous mercurials*

N-(Ethylmercuri)-p-toluenesulfonamide



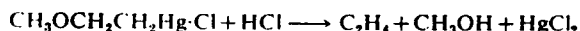
Seed treatment

N-(Ethylmercuri)-1,4,5,6,7,7-hexachloro-bicyclo-[2.2.1]-hept-5-ene-2,3-dicarboximide (also mercurymethyl derivative)



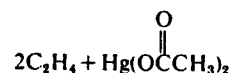
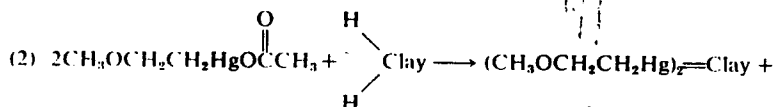
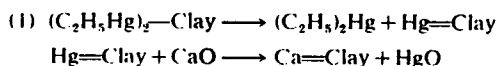
Seed treatment, lawn

organic group R appears to regulate the transport and stability of the compound, and the anionic group determines the solubility. Thus, Boorer (10) has described ethyl- and methoxyethylmercury radicals as resembling sodium ion in that they are strongly alkaline and form highly ionized salts that are generally water soluble and appreciably volatile. These compounds are quantitatively decomposed by strong acids:



In contrast, the phenyl- and tolyl-mercury radicals resemble silver in giving very stable and generally insoluble salts that can be melted and sublimed or boiled with strong acid without decomposition.

In soil all the organomercury compounds are decomposed to mercury salts or to metallic mercury which are the active fungicides. Boorer (10) has suggested that this decomposition takes place through base exchange to form organomercury clays which subsequently form mercury salts by further base exchange. These mercuric salts are then reduced to mercurous salts and to mercury. Typical reactions suggested are:



The metallic mercury liberated in the soil is ultimately converted to mercury sulfide by reaction with  $\text{H}_2\text{S}$  liberated by soil microorganisms.

**2. Structure-Activity Relationships.** As we have seen, the organomercury fungicides can be represented by the general formula  $\text{RHg}\cdot\text{X}$  and the organic radical and anionic group determines the stability, transport, and solubility of the compound. Perhaps the most thoroughly studied series of compounds is the alkoxyalkylmercury salts (89). The methoxy- and ethoxyethyl-mercury compounds were of equal effectiveness as fungicides and had the most favorable ratio between "curative dosage for fungi" vs. "tolerated dosage for seed germination." The propoxy-,



stability of the  
y. Thus, Boorer  
als as resemb-  
highly ionized  
le. These com-

ble silver in  
be melted and

ed to mercury  
les. Boorer (10)  
base exchange  
mercury salts by  
ced to mercur-

Clay +  
 $2\text{CH}_3\text{COOH}$   
OH +

$\text{I}_2 + \text{Hg}(\text{OCCH}_3)_2$

/ converted to  
organisms.

he organomer-  
la  $\text{RHg}\cdot\text{X}$  and  
lity, transport,  
oughly studied  
The methoxy-  
fectiveness as  
rative dosage  
The propoxy-,

isopropoxy-, butoxy-, and isobutoxyethyl mercury compounds were also effective fungicides but had less favorable curative vs. tolerated ratios. For the anionic portion of the molecule there was no general difference in effectiveness as dry seed treatments between inorganic salts and salts of carboxylic acids, which were effective at usual dosages in preparations containing 1.5% mercury. When the free valence of mercury is attached to moieties containing N ( $\text{CH}_3\text{OCH}_2\text{CH}_2\text{HgN}^-$ ) or S ( $\text{CH}_3\text{OCH}_2\text{CH}_2\text{HgS}^-$ ), activity was decreased so that 2% mercury was required in dry seed treatments. If the free valence of mercury is attached to a second carbon as in  $\text{CH}_3\text{OCH}_2\text{CH}_2\text{HgC}\equiv\text{CHgCH}_2\text{CH}_2\text{OCH}_3$ , activity is still further decreased so that a content of 3% mercury is required for dry seed treatment.

**3. Mode of Action.** The mechanism of toxicity of mercury is not very specific and the mercurial fungicides all owe their activity to the  $\text{Hg}^{2+}$  moiety. In the organic mercurials the alkyl or aryl portion serves to conduct the  $\text{Hg}^{2+}$  to the site of action, by reason of lipoid solubility, and also determines the stability and rate of release of the mercury ion. The biochemical action of the mercury fungicides is related to the affinity of  $\text{Hg}^{2+}$  for the sulfhydryl groups of essential respiratory enzymes. Thus mercury treatment decreases the oxygen uptake of treated fungus spores, and poisoned spores can be revived by subsequent application of sulfhydryl compounds such as glutathione or cysteine. The specific mercury chelating agent BAL or 2,3-dimercapto-1-propanol is also effective in protecting fungus spores against mercury (9).

**4. Biological Activity.** The mercury fungicides (see Table 1-3) are generally applied as seed dressings used either as dusts or slurries containing from 1.5 to 3.2% metallic mercury for application to seeds of cotton, rice, wheat, flax, peanuts, safflower, and other crops. They are also used as foliar fungicides for scab of apples, pears, strawberries, and other fruits; for the treatment of gladiolus corms and other bulbs; and as protectants for potato seed pieces; and for control of fungus diseases of turf. Certain of the compounds are very effective slimicides for paper mills, and are mold resistant treatments for paper and paints.

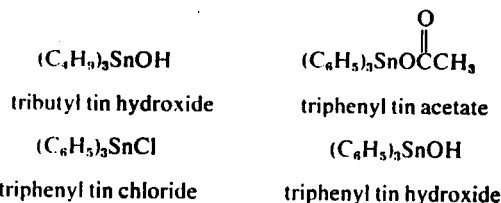
**5. Toxicology.** The organomercury compounds are of high to moderate acute toxicity to animals with oral rat  $\text{LD}_{50}$  values of ethylmercuric chloride 30, phenylmercuri triethanolamine lactate 30, methylmercury 8-hydroxyquinolate 72, ethylmercurithiosalicylic acid 75, N-(ethylmercuri)-1,4,5,6,7,7-hexachlorobicyclo-[2.2.1]-hept-5-ene-2,3-dicarb-oximide 148, methoxyethylmercuric chloride 570, methoxyethylmercuric silicate 1140, and phenyl mercuric acetate 2080 mg/kg. These values compare with the oral  $\text{LD}_{50}$  of 37 mg/kg for mercuric chloride.

tetravalent  
groups with  
organo-tetra-  
halides and  
organo-tetra-

**2. Str**  
of simpl  
The ino  
is found  
is little a  
aliphatic  
butyl tin  
most eff

### 3. Mechanisms of inhibition of the incorporation of energy in place in

**1. Introduction and Chemistry.** Investigation of the fungicidal activities of tin compounds was begun in 1950 by Van der Kerk and co-workers (146). It was soon found that although inorganic tin compounds were inactive, certain organo-tin compounds, particularly the trialkyl and triaryl tins, are among the most effective fungicidal agents yet discovered. These organo-tin compounds are very general biocides and are toxic to plants, insects, and various marine organisms. At present *tributyl tin hydroxide* is used as an anti-mildew agent in wood, textiles, and paints; in antifouling paints for marine vessels; for prevention of microbial slime in paper mills; and as a germicide. *Triphenyl tin chloride*, m.p. 105°C, is used in antifouling paints; and *triphenyl tin hydroxide*, m.p. 120°C, and *triphenyl tin acetate*, m.p. 121°C, are used as agricultural fungicides.



Tin is a group IV element and forms a limited series of organic compounds analogous to those of carbon. In the stable compounds the tin is

**MEMO**

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO FILE

FROM FRANK FARANCA, HSMS IV, BUREAU OF PLANNING AND ASSESSMENT

SUBJECT MONROE TWP MUNICIPAL WELL #4 & #5

On 4-9-87 and 4-13-87 the writer conducted a site reconnaissance of Monroe Township Municipal Wells #4 & #5.

The writer met with Mr. George Cassabone, Supervisor of Monroe Twp. Municipal Utilities Authority on 4-9-87. Mr. Cassabone and the writer conducted a windshield survey of Wells #4 & #5, of which #4 is not currently in use. He explained that Monroe Township M.U.A. currently has 4670 services and the current population is 26,000 people.

On 4-13-87 the writer investigated several areas within Williamstown as possible sources contributing to the present mercury contamination of the ground water. Two sites are believed to be suspect for further investigation.

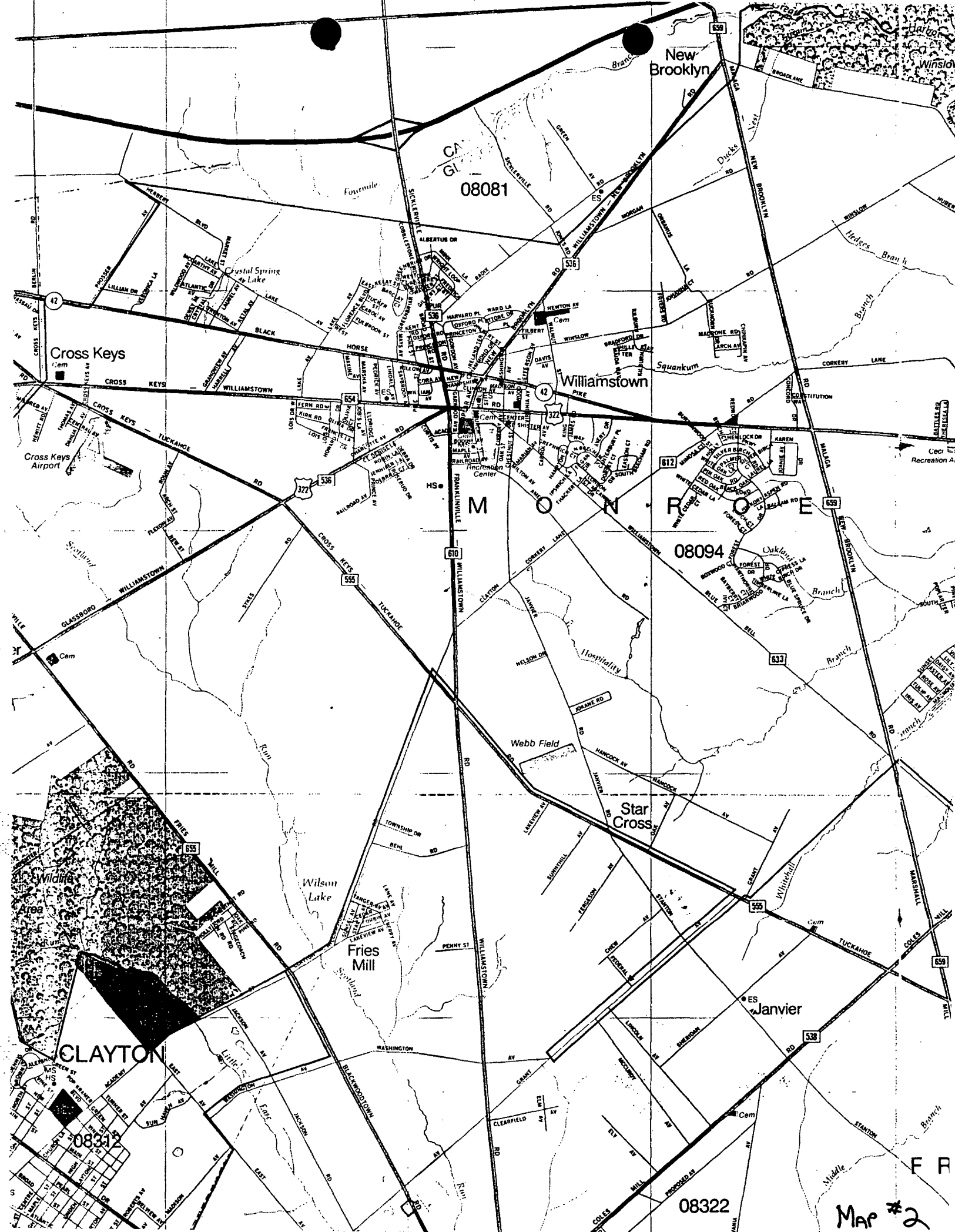
1. The Atlantic City Electric Company - Williamstown Substation  
This parcel of land is located adjacent to Clayton Road (Franklinville - Williamstown Road) on Block 13301, Lot 14. The owner is located at P.O. Box 1500, Pleasantville, NJ 08232. The site is 2.06 acres and contains several rows of oil circuit breakers, transformers and a capacitor bank. The soil within the substation is void of all vegetation and appears stained in several areas.
2. The Gravel Pit  
This parcel of land is also located adjacent to Clayton Road on Block 13301, Lot 11 & 12. The owner is Thomas H. Webb Jr., Rd 7, Box 175, Jackson Road, Williamstown. This site is approximately 10.24 acres which is an inactive gravel pit. The pit itself has had unauthorized dumping of assorted solid waste over many years. A large portion of the gravel pit is devoid of vegetation, and is currently used by the neighbors for the use of recreational all - terrain vehicles. The solid waste is mostly old concrete, asphalt, soil, landscape debris and household trash.

These two sites were in operation prior to the detection of mercury in Well #4 in 1976. An analysis of the USGS Topographic Series Maps reveal that these sites are prime candidates as sources of contamination based upon the hydraulic movement of surface water and ground water to down gradient Wells #4 & #5.

Also suspect is the land on which the Williamstown High School is now located. In the past Mr. Frank Simei owned the land and used it as a farm for spinach and lettuce. However, the use of mercury as a fungicide is not usually associated with these two food crops.

FF:mz

ATTACHMENT H



New Brooklyn

08081

Williamstown

Cross Keys

M O N R O E

08094

Star Cross

Fries Mill

Janvier

CLAYTON

08312

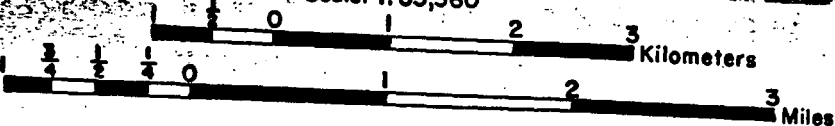
08322

Map #2



NO PERMITS  
MEMO  
6/15/72

Scale: 1:63,360



SHEET 31  
TOPOGRAPHIC SERIE

MAP 3

D.

WINSLOW WATER CO

**CLAYTON WATER DEPT.**

MONROE TWP MUNICIPAL  
UTILITIES AUTH.











MAP #1

0 1 2 3 Kilometers

A horizontal scale bar with markings at  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 0, 1, 2, and 3 miles.

**WATER SUPPLY OVERLAY**  
**SHEET 31**

# LEGEND

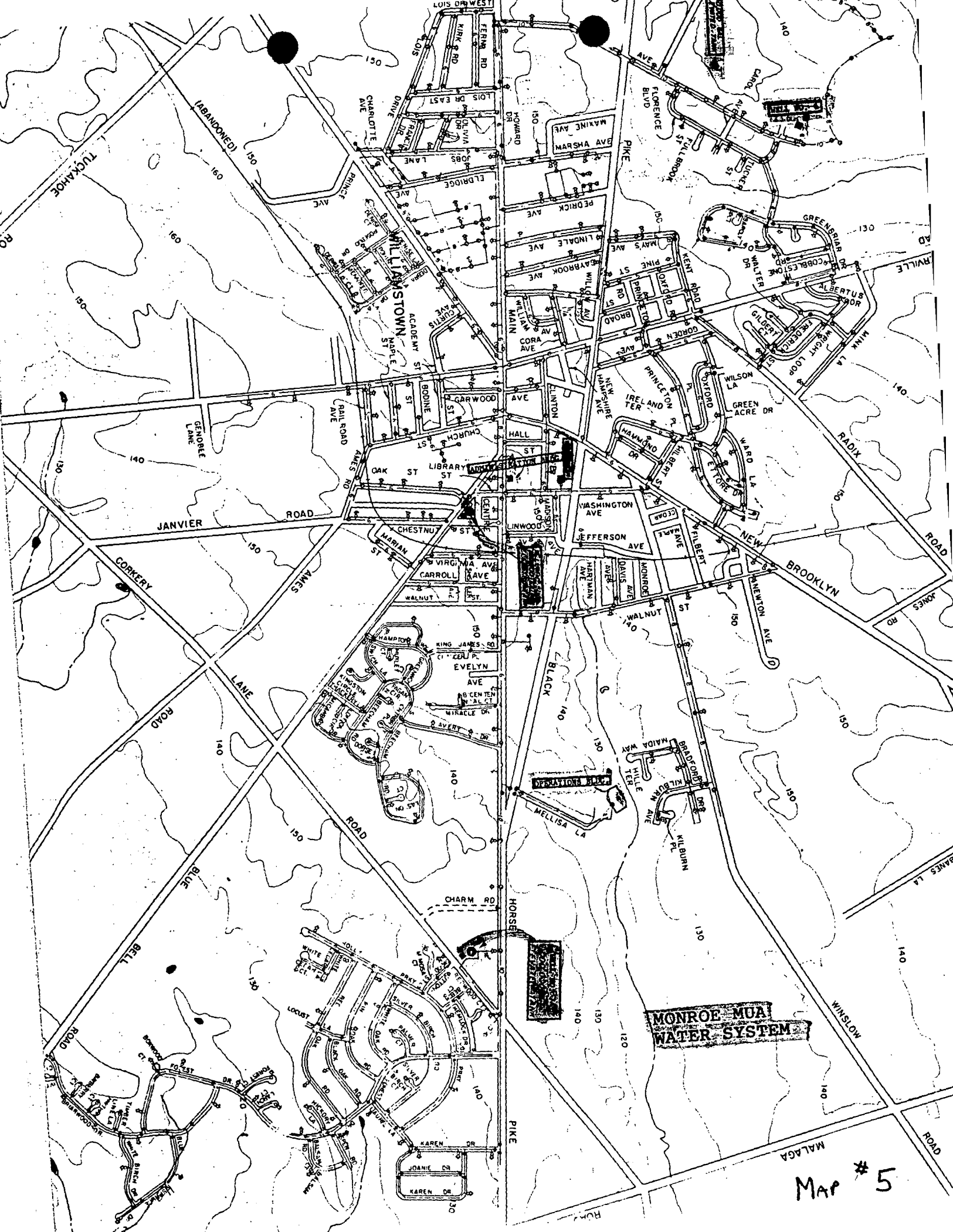
-  AREA SERVED BY PRIVATE WATER SERVICE COMPANIES
-  AREA SERVED BY REGIONALLY OWNED WATER SERVICE COMPANIES
-  AREA SERVED BY MUNICIPALLY OWNED WATER SERVICE COMPANIES
-  AREA NOT PRESENTLY SERVED BY WATER SERVICE
-  PUBLIC SUPPLY WELLS
-  SURFACE WATER INTAKE
-  MAJOR WATER MAINS
-  TOWNSHIP BOUNDARIES
-  COUNTY BOUNDARIES
-  STATE BOUNDARIES

ALL MAP COORDINATES ARE FOR THE LOWER LEFT HAND CORNER.

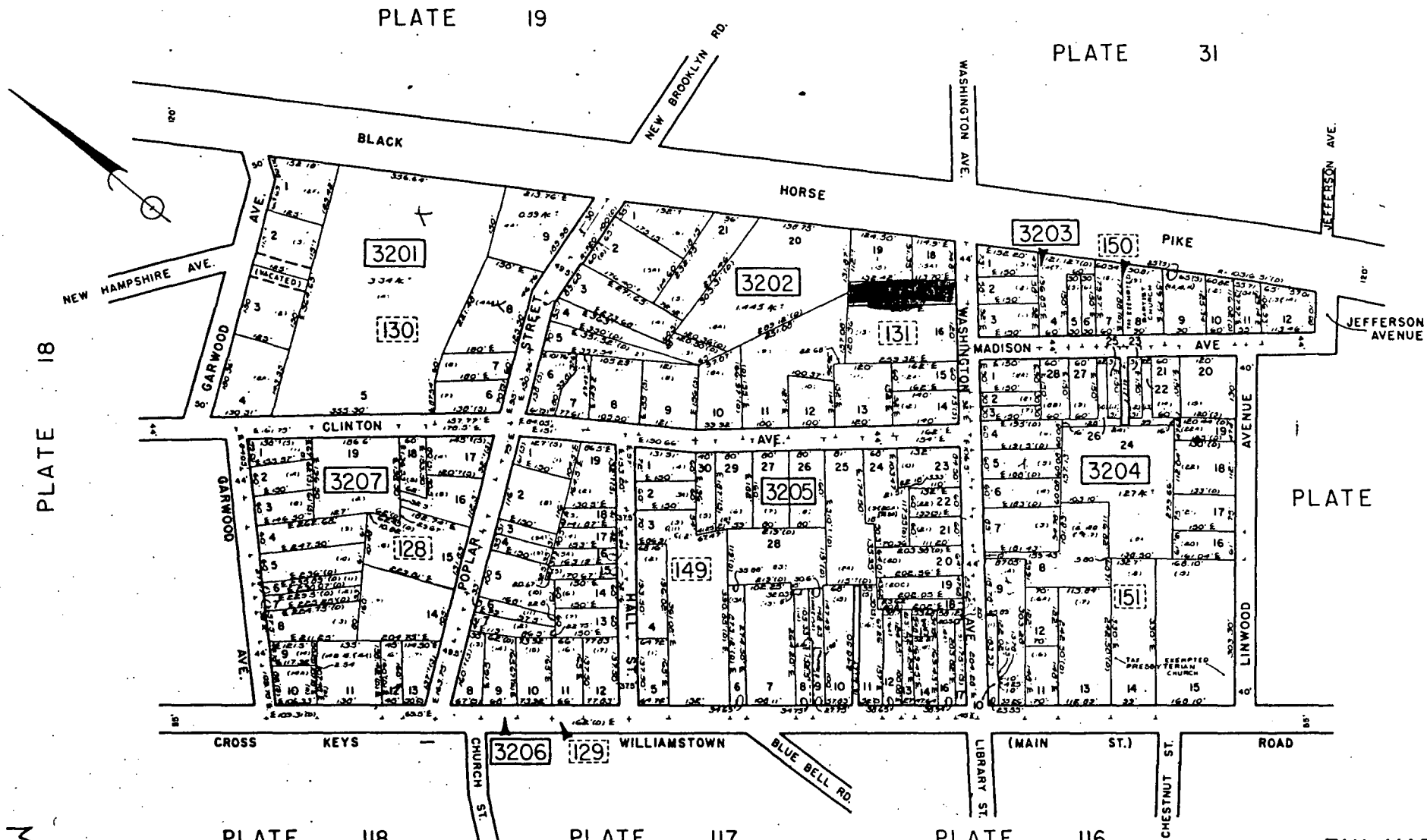
## LOCATION AND OWNERS OF PUBLIC SUPPLY WELLS

31-23-236	Borough of Berlin
31-23-236	Borough of Berlin
31-23-344	Borough of Berlin
31-23-347	Overbrook High School
31-23-367	Lower Camden Regional High School
31-23-395	Ivystone Water Works
31-23-777	Monroe Township Municipal Util. Auth.
31-23-818	Winslow Water Co.
31-23-858	Winslow Water Co.
31-23-899	USGS, New Brooklyn
31-24-158	Assumption Parish School
31-24-177	Ivystone Water Works
31-24-792	Camden Co. Board of Education
31-31-322	Borough of Glassboro
31-32-174	Borough of Clayton
31-32-441	Borough of Clayton
31-33-146	<u>Monroe Township Municipal Util. Auth.</u>
31-33-954	Wharton Realty Co.

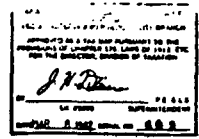








WELL # 4  
Map # 6



**TAX MAP**  
**TOWNSHIP OF MONROE**  
**GLOUCESTER COUNTY, NEW JERSEY**  
SCALE: 1" = 100'  
JUNE 1981  
PETER N. LIBERATO, N.J.L.S.L.C. No. 15546  
CONSULTING ENGINEER SERVICES  
Engineers, Planners and Land Surveyors  
P.O. Box 616, Woodbury, N.J. 08096

WASHINGTON AVE. PLATE 32

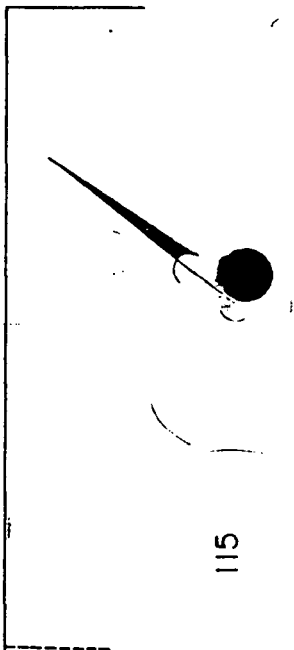
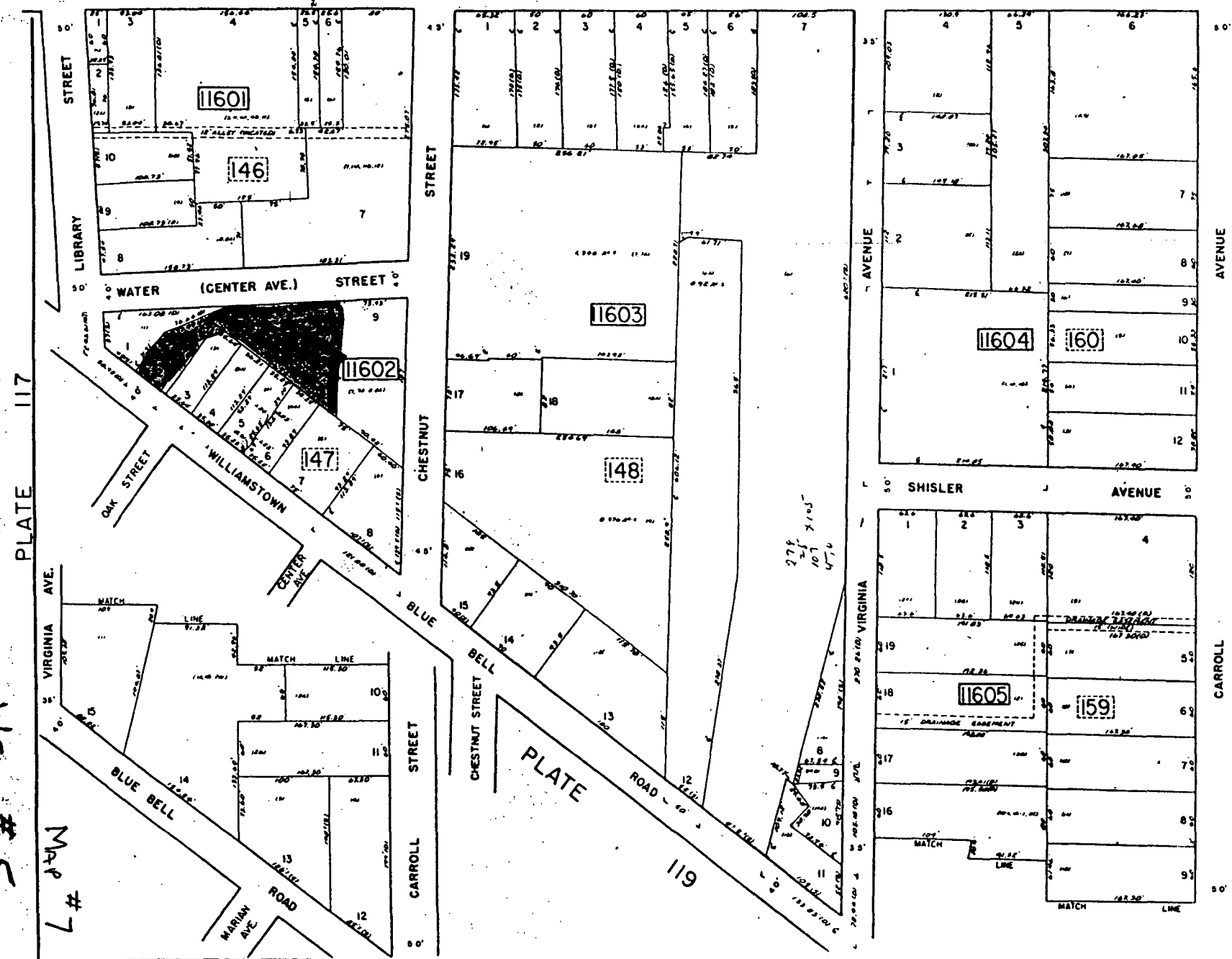
LINWOOD AVE.

EMERGENCY ACCESS

PLATE 33

116

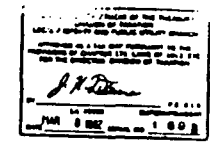
CROSS KEYS WILLIAMSTOWN (MAIN STREET) ROAD



115

PL/

SHISLER (VACATED) AVE.



**TAX MAP**  
TOWNSHIP OF MONROE  
GLOUCESTER COUNTY, NEW JERSEY  
SCALE: 1" = 50' JUNE 1988  
PETER N. LIBERATO, N.J.L.S., License No. 5546  
CONSULTING ENGINEER SERVICES  
Engineers, Planners and Land Surveyors  
P.O. Box 618, Woodbury, N.J. 08096

WELL # 5

L# 7

PLATE 117

PLATE 134

(N. J. S. H. RTE. 32E)  
GLASSBORO - WILLIAMSTOWN ROAD

PLATE 118

PLATE 132

PLATE 130

PLATE 118

TAX MAP

TOWNSHIP OF MONROE

GLOUCESTER COUNTY, NEW JERSEY

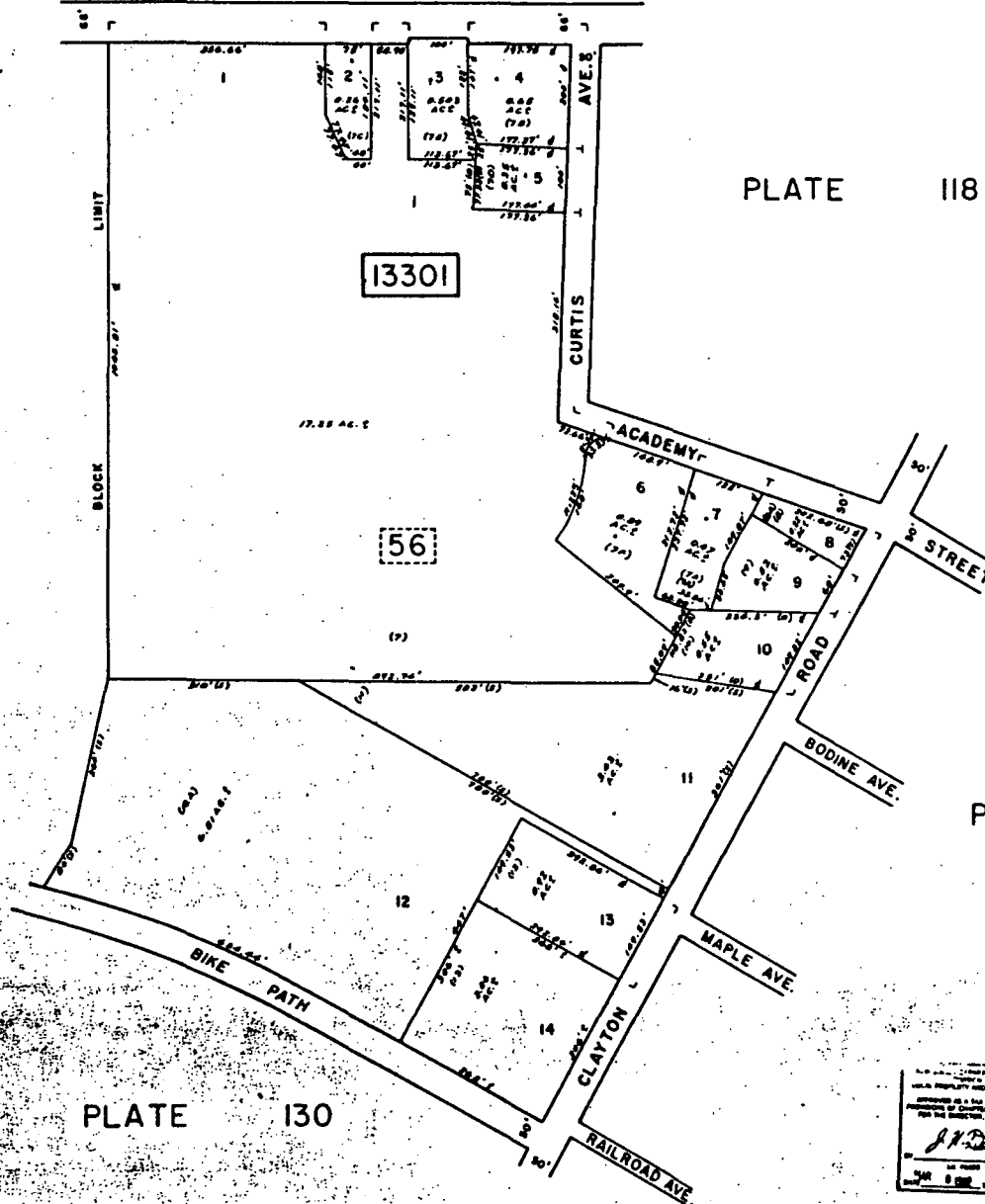
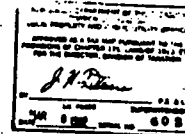
SCALE: 1" = 100' JUNE 1991

PETER N. LIBERATO, N.J.L.S. No. 5546

CONSULTING ENGINEER SERVICES

Engineers, Planners and Land Surveyors

P.O. Box 618, Woodbury, N.J. 08096



Map # 8

Block 13301  
Lot 11 & 12 - GRAVEL P.T.

- Thomas H. Weger, Jr.

RD 7 Box 175

Jackson Road

Williamstown, NJ

Block 13301

Lot 14 - Atlantic City Electric Co.

P.O. Box 1500

Pleasantville, N.J.

08232

(Williamstown, NJ 08096)

DEPARTMENT OF CONSERVATION  
AND ECONOMIC DEVELOPMENT  
Division of Water Policy & Supply  
**WELL RECORD**

Permit No. 31-361  
Application No. 729  
County Gloucester

1. OWNER... Monroe Township... ADDRESS... Williamstown, Gloucester County, NJ  
Owner's Well No. 4 SURFACE ELEVATION... Feet  
(Above mean sea level)
2. LOCATION... Washington Ave. Pumping Station
3. DATE COMPLETED... 11/12/51... DRILLER... A. C. Schultes & Sons Woodbury, N.J.
4. DIAMETER: Top... 12" Inches Bottom... 12" Inches TOTAL DEPTH... 106 Feet
5. CASING: Type... Blk. Steel... Diameter... 12" Inches Length... 67' 11" Feet  
Size of .030
6. SCREEN: Type Johnson Opening .060... Diameter... 12" Inches Length... 41' 9" Feet  
Range in Depth { Top... 69 Feet Geologic Formation... Cohansey  
Bottom... 106 Feet  
Tail piece: Diameter... None Inches Length... ☒ Feet
7. WELL FLOWS NATURALLY No... Gallons per Minute at... ☒ Feet above surface  
Water rises to... ☒ Feet above surface
8. RECORD OF TEST: Date... 11/12/51... Yield... 805 Gallons per minute  
Static water level before pumping... 12' 6" Feet below surface  
Pumping level... 32' 5" feet below surface after... 24 hours pumping  
Drawdown... 20 Feet Specific Capacity... 40.25 Gals. per min. per ft. of drawdown  
How Pumped... Turbine Test Pump How measured... Orifice  
Observed effect on nearby wells... None
9. PERMANENT PUMPING EQUIPMENT:  
Type... Under another contract Capacity... Gallons per minute  
How Driven... Horse Power... R.P.M.  
Depth of pump in well... Feet Depth of foot piece in well... Feet
10. USED FOR... Public Supply  
AMOUNT { Average... Gallons Daily  
Maximum... Gallons Daily
11. QUALITY OF WATER... Good... Sample: Yes ☒ No  
Taste... None Odor... None Color... clear Temperature... 58 °F
12. LOG... See Reverse... Are samples available?
13. SOURCE OF DATA... Driller's Log
14. DATA OBTAINED BY A. C. Schultes Jr. DATE... 11/15/51

ATTACHMENT A

# Log of Well.

0	-	2'	Fill
2'	-	6'	Brown Sand
6'	-	12'	Brown Sand & Stones
12'	-	17'	Gravel & Stones
17'	-	28'	Coarse Sand & Gravel
28'	-	33'	Fine Sand & Clay
33'	-	35'	Coarse Yellow Sand
35'	-	44'	Yellow Clay
44'	-	56'	Coarse Sand
56'	-	58'	Fine Yellow Sand
58'	-	66'	Yellow Sand
66'	-	71'	Yellow Sand
71'	-	74'	Yellow Sand
74'	-	76'	Yellow Sand
76'	-	81'	Sand & Gravel
81'	-	96'	Dark Yellow Sand & Gravel
96'	-	104'	Dark Yellow Sand
104'	-	106'	Dark Brown Sand cemented
106'	-	107'	Black Muddy Clay

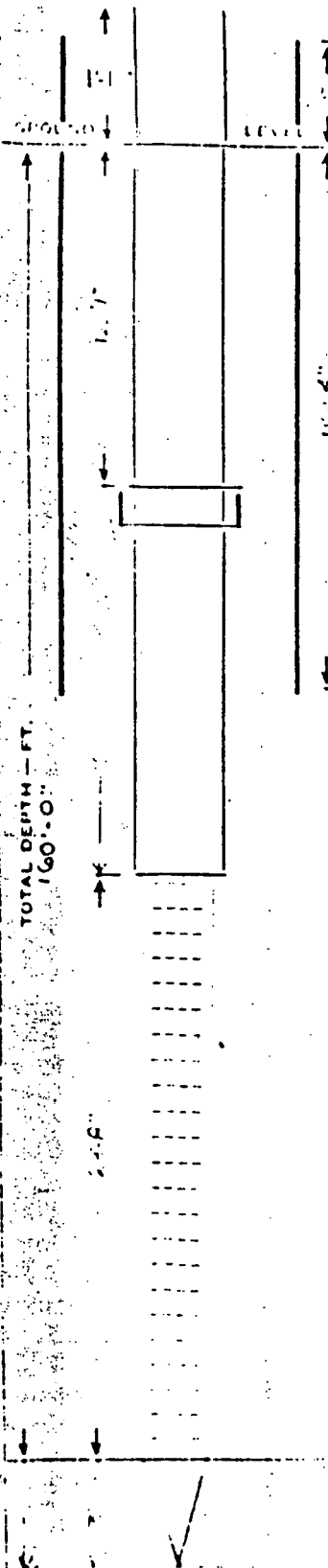
RECEIVED  
NOV 19 1951  
Department of Conservation  
& Economic Development  
Geology & Top. Survey

A. C. SCHULTES & SONS

Water Well Contractors

Gravel Packed Well

#4 = 24  
DPI 4



WELL LOG	FEET FROM GROUND SURFACE
Fill	0 TO 4'
Sand (laminated)	4 - 8'
Sand & stones	8 - 51'
Sand (some laminated)	51 - 58'
Clay (black)	58 - 63'
Sand	63 - 68'
Clay (black)	68 - 79'
Sand	79 - 84'
Hardpan	84 - 85'
Sand	85 - 87'
Clay (laminated)	87 - 92'
Sand/thin layers clay	92 - 116'
Sand/thin layers hardpan	116 - 126'
Hardpan	126 - 127'
Very hard packed sand	127 - 155'
Fine sand	155 - 157'
Clay	157 - 180'

NAME OF OWNER  
MONROE TOWNSHIP MUNIC  
PAL UTILITIES AUTHORITY

Well No. **5**

Job No. 7194

Location Williamstown, N.J.

Test Pumped (Hrs.) 9 1/2 hrs.

Capacity G.P.M. 510

Static Level (Ground) 36'2"

Pumping Level (Ground) 82'

Specific Capacity 11

Diameter of Outer Casing 12"

Diameter of Inner Casing 8"

Depth of Well (Ground) **160**

Depth to R. L. Nipple (Ground)

Depth to Gravel (Ground) 20'

Gravel Size #3

Length of Casing 12" = 121'

Length of Casing 8" = 126'

Underream Size 32

Type of Screen Johnson s/s

Size of Screen (Dia.) 8" I.D.

Top Screen Fitting Coupling

Bottom Screen Fitting Plug

Slot Size #60

Blank No

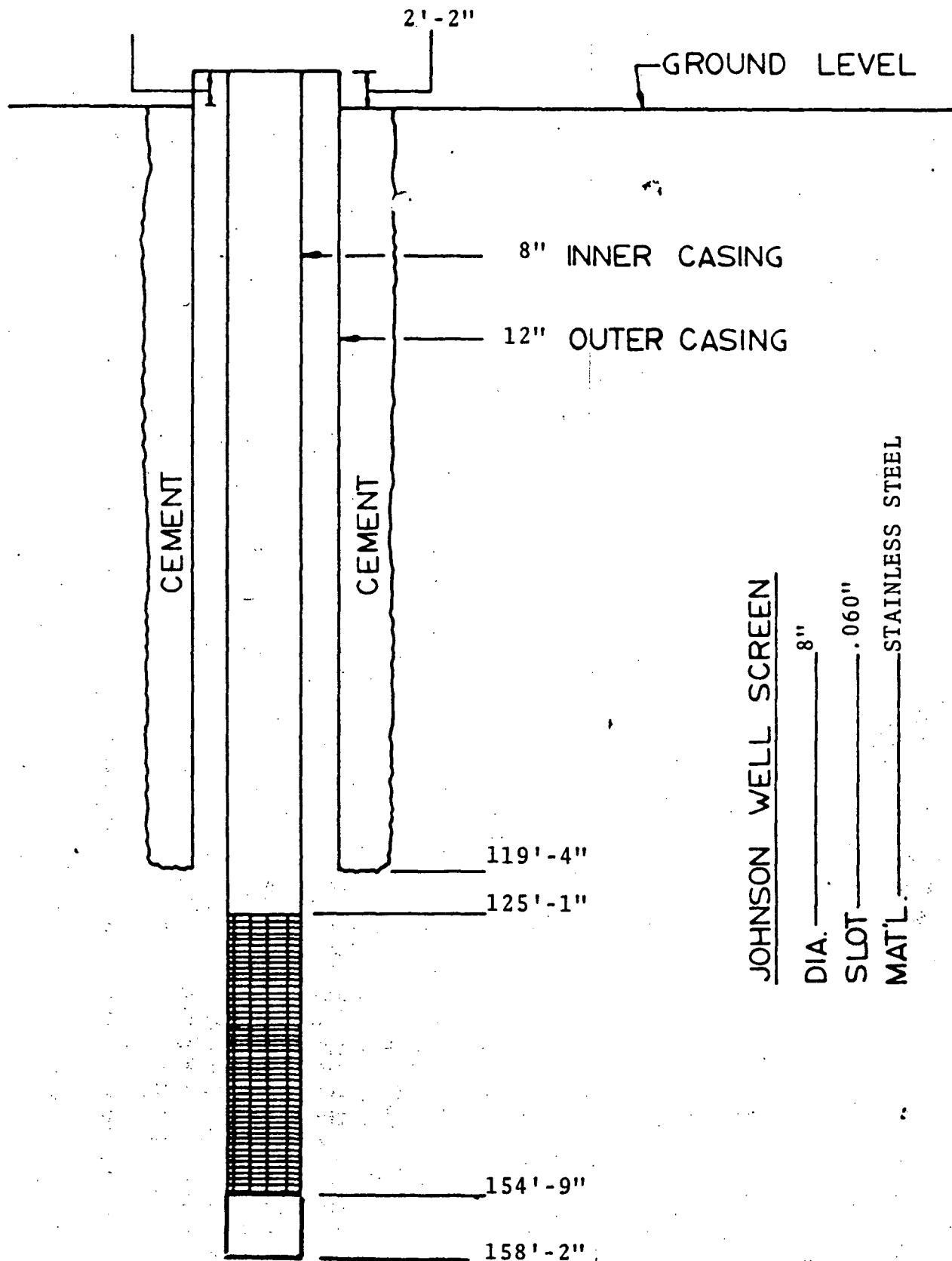
Rep. of Cement 100

Drilling Machine 1250

Date Well Completed 1/18/66

Driller Hammond

MONROE TOWNSHIP MUNICIPAL UTILITIES AUTHORITY  
WILLIAMSTOWN, NEW JERSEY  
JOB NO. 7194  
PRODUCTION WELL NO. 5



JOHNSON WELL SCREEN

DIA. 8"

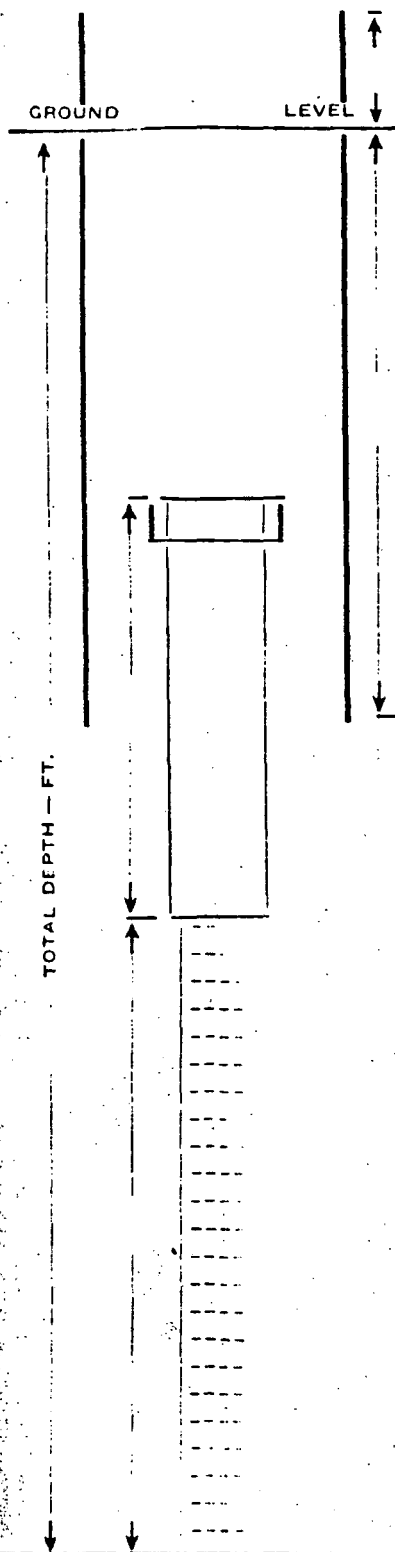
SLOT .060"

MAT'L STAINLESS STEEL

MONROE TWP.  
MUA #6

# A.C. SCHULTES & SONS, INC.

## GRAVEL PACKED WELL



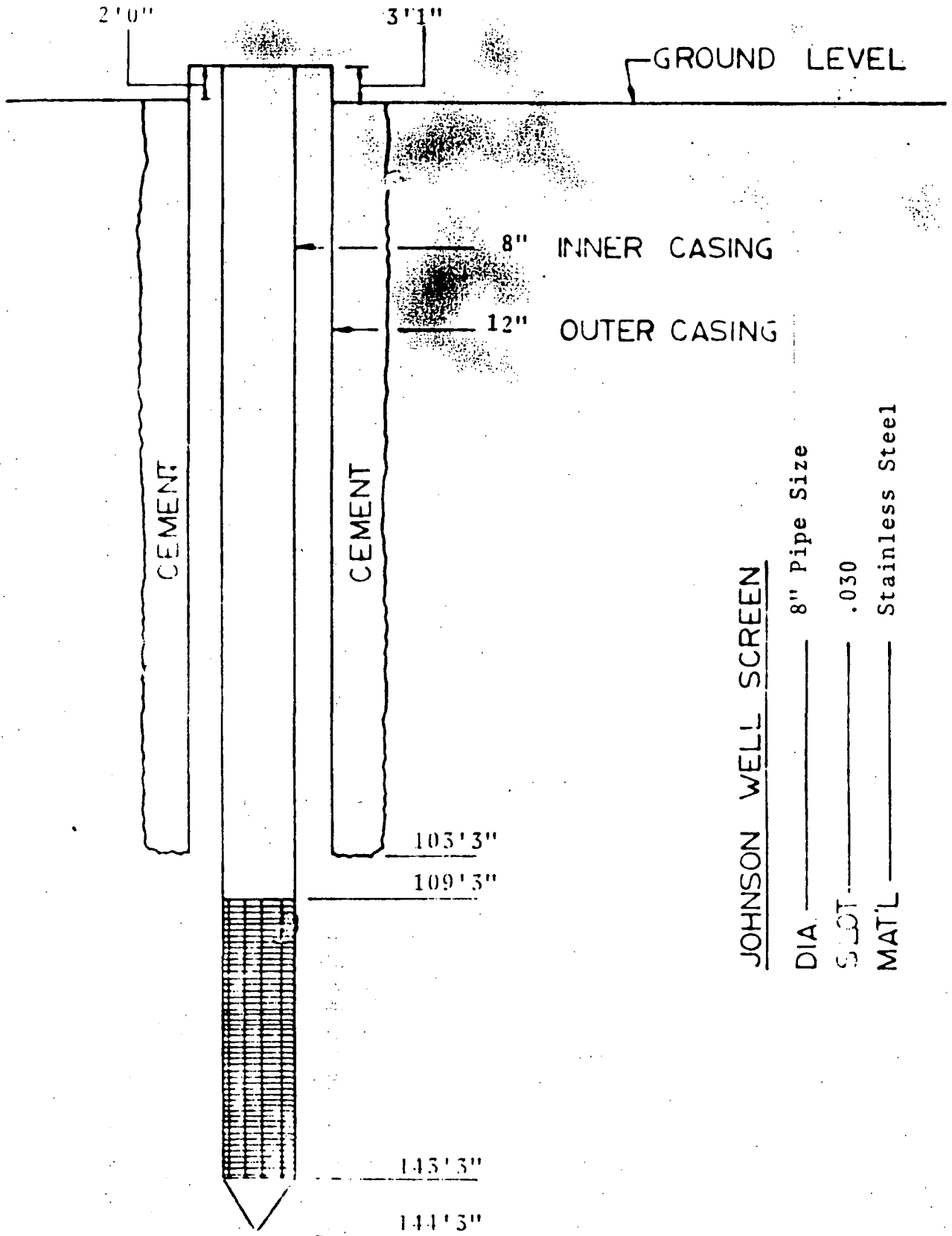
WELL LOG	FEET FROM GROUND SURFACE	NAME OF OWNER
Top soil-	0 TO 2'	Freeways Properties Monroe Woods
Lt. yellow sand & stones	2'-4'	Location Williamstown, Well No. 1 #6 MUA
Dr. yellow sand clayish	4'-17'	Job No. 7896 Test Pumped (Hrs.) 8
Yellow sand & stones clayish	17'-22'	Capacity G.P.M. 412 Static Level (Rotary Table) 15'10"
White sand & stones med. to coarse	22'-36'	Pumping Level (Rotary Table) 41' Specific Capacity 10
Clay, lt. brown	36'-42'	Diameter of Outer Casing 12"
Sand	42'-51'	Diameter of Inner Casing 8"
Hard clay	51'-53'	Depth of Well (Rotary Table) 146'3"
Sand & gravel thin layers clay	53'-80'	Depth to R.L. Nipple (Rotary Table) 12' Gravel Ground Size #3
Hard packed sand & gravel	80'-101'	Length of Outer Casing 106'4" Length of Inner Casing and Screen 145'3"
Red clay	101'-102'	Underream Size 31"
Sand & gravel	102'-127'	Screen Material S.S.
Sand, fine-med. gr.	127'-141'	Screen Mfg. Johnson
Fine green clayish sand	141'-160'	Size of Screen (Rotary Table) X Pipe Size 8 Length of Screen 34'
Clay greenish black	160'-166'	Top Screen Fitting F.I.P.T. Bottom Screen Fitting M.I.P.T.
		Slot Size .030
		Bags of Cement 105
		Drilling Machine 1250
		Date Well Completed 1/30/70
		Driller Albert Hammond

1414  
36 33  
166-91



FREEWAYS PROPERTIES  
MONROE WOODS  
MONROE TOWNSHIP  
WELL # 1

#6 MNUA



JOHNSON WELL SCREEN

DIA. \_\_\_\_\_ 8" Pipe Size

SLOT \_\_\_\_\_ .030

MAT'L \_\_\_\_\_ Stainless Steel

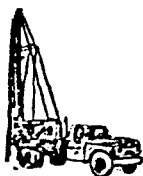
DEPARTMENT OF CONSERVATION  
AND ECONOMIC DEVELOPMENT  
DIVISION OF WATER POLICY & SUPPLY

Permit No. 31-5152  
Application No. \_\_\_\_\_  
County \_\_\_\_\_

WELL RECORD

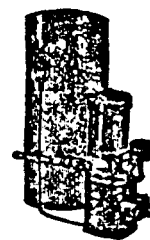
1. OWNER Violet Packing Company ADDRESS 123 Railroad Ave., Williamstown, N.J.  
Owner's Well No. 31-5150 SURFACE ELEVATION 150 Feet  
(Above mean sea level)
2. LOCATION 123 Railroad Ave., Williamstown, N.J.
3. DATE COMPLETED 8/15/67 DRILLER J. G. Holman
4. DIAMETER: top 8 inches Bottom 8 inches TOTAL DEPTH 143 Feet
5. CASING: Type Black iron Diameter 8 inches Length 23 feet
6. SCREEN: Type Stainless steel Size of opening 0.15 Diameter 8 inches Length 20 Feet  
Range in Depth { Top 115 Feet Geologic Formation \_\_\_\_\_  
Bottom 150 Feet
7. WELL FLOWS NATURALLY \_\_\_\_\_ Gallons per Minute at \_\_\_\_\_ Feet above surface  
Water rises to \_\_\_\_\_ Feet above surface
8. RECORD OF TEST: Date 8/15/67 Yield 300 Gallons per minute  
Static water level before pumping 27 Feet below surface  
Pumping level 46.5 feet below surface after 3 hours pumping  
Drawdown 20 Feet Specific Capacity 15 Gals. per min. per ft. of drawdown  
How Pumped Turbine How measured Tank  
Observed effect on nearby wells \_\_\_\_\_
9. PERMANENT PUMPING EQUIPMENT:  
Type Submersible Turbine Mfr. Name J. G. Holman  
Capacity 300 G.P.M. How Driven Electricity H.P. 20 R.P.M. 3500  
Depth of Pum. in well 60 Feet Depth of Footpiece in well 91 Feet  
Depth of Air Line in well \_\_\_\_\_ Feet Type of Meter on Pump \_\_\_\_\_ Size \_\_\_\_\_ Inches
10. USED FOR Industrial cooling AMOUNT { Average \_\_\_\_\_ Gallons Daily  
Maximum \_\_\_\_\_ Gallons Daily
11. QUALITY OF WATER Good Sample: Yes \_\_\_\_\_ No \_\_\_\_\_  
Taste \_\_\_\_\_ Odor \_\_\_\_\_ Color \_\_\_\_\_ Temp. \_\_\_\_\_
12. LOG Attacked Are samples available? \_\_\_\_\_  
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA \_\_\_\_\_
14. DATA OBTAINED BY \_\_\_\_\_ Date August 30, 1967

(NOTE: Use other side of this sheet for additional information such as log of materials submitted)



## SOUTH JERSEY DRILLING CORP.

South Delsea Drive  
Vineland, New Jersey  
609-692-7854



Violet Packing Company  
Williamstown, New Jersey

LOG

0 - 1'	Topsoil
1 - 3'	Yellow clay & large gravel
3 - 11'	Sandy clay
11 - 13'	Clay
13 - 21'	Fine to medium yellow sand
21 - 28'	Coarse sand w/fine gravel
28 - 30'	Clay
30 - 36'	Medium to coarse sand
36 - 43'	Alternating thin layers of clay and sand
43 - 51'	Fine to medium sand
51 - 60'	Yellow & gray clay
60 - 64'	Medium sand w/some gravel
64 - 69'	Gray clay
69 - 87'	Sand & gravel
87 - 115'	Black clay
115 - 150'	Coarse sand & fine gravel

133  
155  
31'  
104  
49  
4

## TABULATION OF ANALYTICAL DATA FROM PUBLIC WATER SUPPLY

Supply Morris MUA County Gloucester  
 Municipality Washington We Williamson Date Collected 6/21/76  
 Collected by Beano Memo # W-76 Project # W-

**BACTERIOLOGICAL ANALYSES:** Coliform organisms determined by the membrane filter technique are reported in colonies per 100 ml.  
 Chlorine residuals are reported in ppm.

Sample Number	Point of Collection	Coliform Organisms		Chlorine Residual	
		Fecal	Total	Free	Total
<u>27986</u>	<u>Well # 4 Raw-water Start</u> <u>Washington We Williamson</u>		<u>0</u>	<u>TR</u>	<u>.35</u>
<u>27987</u>	<u>Run 5 min</u>		<u>0</u>		
<u>27988</u>	<u>Run 10 min</u>		<u>0</u>		

**PHYSICAL - CHEMICAL ANALYSES:** Determinations are in ppm except color, odor, turbidity, and pH. Figures in parentheses are from the N.J. Potable Water Standards.

Sample Number		Sample Number	
<u>27986</u>		<u>27986</u>	
Color (10)		Arsenic	<u>NEG</u>
Odor (III)		Barium	<u>NEG</u>
Turbidity (5)		Cadmium	<u>NEG</u>
pH	<u>4.9</u>	Chromium +6	<u>NEG</u>
Alkalinity to pH 4	<u>7</u>	Copper	<u>0.14</u>
Nitrate as NO <sub>3</sub> (30)	<u>24</u>	Cyanide	<u>NEG</u>
Chloride (250)		Lead	<u>0.02</u>
Total Dis. Solids (500)	<u>110</u>	Mercury	<u>2.0 pp</u>
ABS/LAS (0.5)	<u>NEG</u>	Selenium	<u>NEG</u>
Total Hardness (150)	<u>26</u>	Silver	<u>NEG</u>
Total Iron (0.3)		Zinc	<u>0.0</u>
Manganese (0.05)			
Sodium (50)			
Sulphate (250)			
Fluoride (1.5)	<u>NEG</u>		

Remarks

4 pH 6.8 5 mg/L turbidity for iron manganese 6 mg/L fluoride  
for fluoride C Operator report received and up to date.



## TABULATION OF ANALYTICAL DATA FROM PUBLIC WATER SUPPLY

Municipality Morris MPACounty GloucesterCity Morris TownshipDate Collected 6/21/76Collected by OBMemo # W-76Project # W

**TERIOLOGICAL ANALYSES:** Coliform organisms determined by the membrane filter technique are reported in colonies per 100 ml.  
Chlorine residuals are reported in ppm.

Sample Number	Point of Collection	Coliform Organisms		Chlorine Residual	
		Fecal	Total	Free	Total
27981	Well # 5 Ray Water Dist Water St Williamstown		0	TR	.35
27982	Run for 5 min		0		
27983	Run for 10 min		0		

**PHYSICAL - CHEMICAL ANALYSES:** Determinations are in ppm except color, odor, turbidity, and pH. Figures in parentheses are from the N. J. Potable Water Standards.

Sample Number	27981					Sample Number	27981
Color (10)						Arsenic	NEG
Odor (10)						Barium	NEG
Turbidity (5)						Cadmium	NEG
pH	5.1					Chromium +6	NEG
Alkalinity to pH 4	7					Copper	0.063
Nitrate as NO <sub>3</sub> (30)	24					Cyanide	NEG
Fluoride (250)						Lead	0.006
Total Dis. Solids (500)	112					Mercury	1.8ppb
BS/LAS (0.5)	NEG					Selenium	NEG
Total Hardness (150)	3.2					Silver	NEG
Total Iron (0.3)						Zinc	0.09
Manganese (0.05)						Phenols	NEG
Sodium (50)							
Sulphate (250)							
Fluoride (1.5)	NEG						

RECEIVED

JUL 15 1976

GLoucester COUNTY HEALTH DEPT

RECEIVED

JUL 15 1976

GLoucester CO. DEPT. OF HEALTH

Remarks: 4 PH 68 5 No facilities for iron manganese No facilities for fluoride Copper test reports received and up to date

State of New Jersey  
Department of Environmental Protection  
Division of Water Resources

MEMO

TO Mr. Richard Bellis, Assistant Director, Monitoring, Surveillance  
and Enforcement Element

FROM Mr. John Wilford, Assistant Director, Water Supply  
and Flood Plain Management Element DATE November 3, 1976

SUBJECT Mercury Contamination of Ground Water - Monroe Township, Gloucester County

Attached is a copy of a memorandum-report which discloses mercury contamination of the water derived from Wells #4 and #5 of the Monroe Township Municipal Utilities Authority, Gloucester County. As is noted therein, based upon an initial, cursory investigation, personnel of the Bureau of Potable Water have been unable to determine the origin of the mercury. No manometers, or other instruments utilizing mercury, are in use at either of the wells.

I have advised the M.U.A. to immediately undertake the construction of a new well or wells to replace Wells #4 and #5 and, in the interim, to use Well #6 as the main production well, augmented as necessary by Well #5 to meet daily water demands. I have suggested that Well #4 be taken out of service and be retained only for standby purposes to meet a dire emergency such as a major fire.

On the basis of a specific test made on October 5, 1976, the mercury is in the inorganic form. This, fortunately, has less toxic potential than the alkyl (organic) form. However, the National Interim Primary Drinking Water Regulations promulgated by EPA pursuant to the Safe Drinking Water Act, which will become effective in June 1977, impose a maximum contaminant level for total mercury (0.002 mg/l), and make no differentiation between the inorganic and organic forms.

On the basis of the findings by the Bureau of Potable Water, it is requested that you will refer the matter to your Office of Special Services and have them conduct an intensive survey to determine, if possible, the origin of the mercury.

JW:bn

Enclosure

cc: Mr. Zelikson

11/10  
Dave  
Frank  
// ASAP  
KWS

Mr. Bellu

Mr. Wilford

Messrs. Laffey and Vora

November 3, 1976

Mercury Contamination, Monroe Township Municipal Utilities Authority

The recently instituted program for sampling raw water sources throughout the State has disclosed a mercury contamination in two wells owned and operated by the Monroe Township Municipal Utilities Authority, Gloucester County, New Jersey.

The three operating wells of this system were sampled on June 21, 1976. Wells #4 and #5 showed mercury values of 2.0 ppb and 1.8 ppb respectively, while Well #6 yielded a negative result. The mercury contamination in Wells #4 and #5 was confirmed by samples taken on July 19, August 18, August 24, and October 18, 1976 with results ranging from 1.4 ppb to 6.4 ppb in Well #4 and from 0.8 to 2.8 ppb in Well #5. On October 5 and October 15, 1976 the water from Well #5 was negative for mercury, but Well #4 showed values ranging between 1.4 ppb and 2 ppb. The October 5 sample from Well #4 showed that the mercury was all of the inorganic type. System samples taken on August 18, August 24, October 10 and October 18 showed mercury values ranging from 1.0 ppb to 10.8 ppb. A tabulation of the analytical results is attached.

An inspection of the Monroe Township M.U.A. system was conducted on October 5, but no determination could be made for an immediate source of the mercury. Wells Nos. 4 and 5 are located respectively in Washington Avenue and Chestnut Streets, with an intervening distance of 1,200 feet.

Well #4 is the main production well for the system, having a reported yield of 800 gpm. It was constructed in 1952, taps the Cohansey Aquifer, and is cased to its full depth of 106 feet. Our records do not indicate whether or not the annular space is sealed. The formation log shows a clay layer between 35 feet and 44 feet.

Well #5 was constructed in 1967 and has a reported yield of 500 gpm. It taps the Bridgeton Tertiary Cohansey aquifer, and is 160 feet deep. The annular space between the casing and the drill hole is sealed to a depth of 127 feet. The formation log shows the presence of a clay layer between 58 feet and 63 feet, and a layer of hardpan between 84 feet and 89 feet.

A tour of the area surrounding Wells Nos. 4 and 5 failed to indicate any probable sources of mercury contamination with the exception of the Violet Packing Company located 0.5 miles west of Well #5. This company is engaged in the production of tomato sauces. It operates seasonally during the summer months and, during operations, produces about 200,000 gallons of wastewater

B4

per day which is treated by pH adjustment, aeration and settling, prior to disposal either to the sanitary sewer or on to adjacent farmland. During the 1976 season their wastes were disposed of to the ground.

There are several sewing factories located in various parts of the Township, engaged in the manufacture of clothing, but these are believed to be all dry industries. There is a sanitary landfill located approximately one mile north of wells #4 and #5, but this is not known to receive chemical wastes.

A total of 24 public water supply wells in the area surrounding Monroe Township was sampled, all with negative results for mercury. A tabulation of these wells is also attached.

The results of the various samples taken show, conclusively, that the water from Wells #4 and #5 contains mercury, and that this constituent is also present in the delivered water. Current New Jersey Potable Water Standards and the 1962 P.H.S. Drinking Water Standards do not include a maximum contaminant level for mercury, though there is a "rule of thumb" maximum of 2.0 ppb. The recently-promulgated National Interim Primary Drinking Water Regulations, however, which will become effective in June 1977, include a maximum contaminant level of 2.0 ppb, for mercury, and though inorganic mercury is considered to be of far less toxic potential than organic mercury, the imposed value is for total mercury.

The operator of the system has been informed of these findings but, to date, they have not been officially brought to the attention of the Monroe Township M.U.A. It is, therefore, our recommendation that they be apprised of the situation so they can take immediate steps to develop alternate sources of water prior to the effective date of the National Interim Primary Regulations and thus avoid the appropriate public reporting requirements and the necessity for applying for an exemption or waiver in accordance with the requirements of the federal Safe Drinking Water Act. It is further recommended that this matter be referred to the Office of Special Services with a request that they will conduct an intensive search of the area to determine if there is a local industry that is discharging mercury contaminated wastes.

Respectfully submitted,

William Laffey

Bhupendra Vora

WL&BV:JW:bn  
Attachments



MONROE TWP. MUA, GLOUCESTER COUNTY  
TABULATION OF MERCURY RESULTS

SAMPLING POINT

DATE	WELL #4 RAW DELIVERED	WELL #5 RAW DELIVERED	WELL #6 RAW DELIVERED	SYSTEM - 372 Main St.
MERCURY CONTENT IN ppb				
6-21-76 [W-76]	2.0	1.8	Neg.	
7-19-76 [Memo #312]	<u>6.4</u>	<u>2.8</u>		
8-18-76 [Memo #338]	4.2	1.4		<u>10.8</u>
8-24-76 [Memo #358]	4.2	1.6	Neg.	1.0
10-5-76 [Routine Insp]	1.4 [total] 1.4* Neg.	Neg. Neg.	Neg.	
10-15-76 Well #4 Runs. Well #5 Rested For 12 hours and then took samples At 0, 1, 2, 4, 5 Hours [Memo #338]	Hr. 0 -1.6 1 -1.6 2 -1.6 4 -2.0 5 -1.4	Neg. Neg. Neg. Neg. Neg.		1.2
10-18-76 Well #5 Runs. Well #4 Rested For 12 hours and then took samples At 0, 1, 2 4, 5 Hours [Memo #438].	Hr. 0 -6.0 1 -4.0 2 -3.4 4 -3.8 5 -3.9	1.0 1.0 1.0 0.8 1.0		1.6

\* Inorganic Mercury.



# QUALITY CONTROL LABORATORY

Bacteriological and Chemical Analysis

(609) 428-1303

243 WHITE HORSE PIKE

AUDUBON, N.J. 08106

Date of collection Dec. 16, 19 76 Hour of Collection 8-9-10-11-12 P.M. Analysis No. 127616-344  
Company Monroe MTA Address \_\_\_\_\_ Phone \_\_\_\_\_  
Sample taken from \_\_\_\_\_ By Jim Davis  
Condition of sample when drawn S.T.P.  
Collector's Remarks \_\_\_\_\_  
Date Delivered to Laboratory 12/16, 19 76 Time \_\_\_\_\_  
Condition of Sample upon arrival at Laboratory \_\_\_\_\_

CHEMICAL											
TEST	REQ?	PRES. ABS.	QUAN.	METH.	TECH. IN.	TEST	REQ?	PRES. ABS.	QUAN.	METH.	TECH. IN.
cid						Mercury		less	than 0.001	mg/l	
alkalinity						Nitrate					
aluminum						Nitrite					
ammonia						Odor					
arsenic						Oil & Grease					
B.O.D.						Pesticides					
bromides						pH		8.1			
carbon Dioxide						Phenols					
cadmium						Phos. Ortho					
calc. Hardness						Phos. Tot.					
C.O.D.						Residue Tot.					
chlorides						Residue Filtr.					
chlorides OTA						Residue Non-Filt.					
chlorides Total						Set. Material					
chl. Hydrocarbons						Sodium					
chromate						Solids					
copper						Spec. Cond.					
Dia. Oxygen						Sulfate					
Dia. Solids						Sulfide					
fluorides						Sulfite					
hardness						Sus. Matter		358	mg/l		
hydrogen Sulfide						Toxicants					
iron (Ferric)						Turbidity					
iron (Ferrous)						T.D.S.					
leldahl N						Total Solids					
lead						Zinc					
magnesium											
manganese											
nonionic (ABS&LAS)						Cationic					
nonionic (sulfated)						Nonionic					

BACTERIOLOGICAL											
TEST	AGG PLATE	DIL CELLS	TOTAL	METH.	TECH. IN.	TEST	AGG PLATE	DIL CELLS	TOTAL	METH.	TECH. IN.
total Cells											
coliform											
fecal Strep.											

Remarks \_\_\_\_\_

# STROKA SIPPEL MASTELLER

& ASSOC., INC.

ENGINEERING & SURVEYING

ROBERT J. SIPPEL, LS. PP  
EARL H. MASTELLER, PE  
NELSON L. HOOVER, LS  
JOHN E. LORENZ

336 ROUTE 70, MARLTON, NEW JERSEY 08053  
609.983.7260

December 23, 1976

Mr. Gustav Mihlebach, Superintendent  
Monroe Municipal Utilities Authority  
372 S. Main Street  
Williamstown, New Jersey 08094

Re: N.J.D.E.P. Special Services  
Potable Water Well Survey

Dear Gus:

Pursuant to your request on December 21, 1976, a field crew ran the necessary levels to determine the elevations of wells 4, 5, 6 and the Violet Packing Co. well. The bench marks used were New Jersey Geodetic Control Survey monuments.

Well #4 - Washington Avenue

Well house finish floor elevation 139.25

Top of concrete pump motor base elevation 141.14

Well #5 - Chestnut Street & Water Street

Well house finish floor elevation 165.26

Well #6 - Lake Avenue & Ellen Terrace

Top of concrete pump motor base elevation 144.30

Violet Packing Co. Well - Railroad Avenue

Top of flange of submersible well discharge piping elevation 155.39

Mr. G. Mihlebach, Superintendent

Page 2

December 23, 1976

If you should request any additional information or have any questions,  
please do not hesitate to call me.

Very truly yours,

A handwritten signature in dark ink, appearing to read 'Bob', written over the typed name.

Robert G. Volk

RGV:nl

# MONROE MUNICIPAL UTILITIES AUTHORITY

372 SOUTH MAIN STREET

WILLIAMSTOWN, NEW JERSEY 08094

GUSTAV MIHLEBACH, Superintendent

Phone: 629-4400

December 27, 1976

*Dave*  
Amanda M. Miles  
Administrative Clerk

Phone 629-4400

1976 DEC 30 PM 2 39

NOTED  
PROTECT  
OF WATER RESOURCES

State of New Jersey  
Dept. of Environmental Protection  
Division Water Resources  
P. O. Box 2809  
Trenton, N. J. 08625 *David Shantaw*  
Attn: Mr. David Longstreet  
Supervision, Hazardous Material Program

Re: Mercury Contaminate  
Wells # 4, and # 5

3-1415

Dear Dave:

Per your request, enclosed are logs on Wells # 5, #6, and Violet Packing Cannery; also a letter from our engineering firm stating the elevations of the four (4) wells.

An analysis for Mercury performed by Quality Control Lab on the sewage treatment plant effluent is also enclosed.

Very truly yours,

Monroe Municipal Utilities Authority

*Gustav Mihlebach*

Gustav Mihlebach  
Superintendent

GM:am

encl: 4

cc: Mr. Volk  
file

588 3400

B.

Chem-25  
Sept. 75

NEW JERSEY STATE DEPARTMENT OF HEALTH  
STREAM OR WASTEWATER ANALYSIS

Time & Date Received \_\_\_\_\_  
By Labs \_\_\_\_\_  
Lab. No. \_\_\_\_\_

FIELD INFORMATION

PLEASE TYPE OR PRINT  
WITH BALLPOINT PEN

Sample No. 18582

Date of Collection 2-8-1977

Hour 12:00 A.M. \_\_\_\_\_ P.M. ✓

Composite Period CRAB Interval \_\_\_\_\_

Collected by MINORAL - T. J. ...

Residual Chlorine:

Immediate \_\_\_\_\_

Municipality MUNICIPALITY TWP.

Plant VIOLET PARKING CO.

Developed \_\_\_\_\_

Stream \_\_\_\_\_

Flow Rate \_\_\_\_\_

Location RAILROAD AVE

Temperature \_\_\_\_\_

Description and Remarks: WELL

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested  
(Bacteriological)

10	1	10 <sup>-1</sup>	10 <sup>-2</sup>	10 <sup>-3</sup>	10 <sup>-4</sup>	10 <sup>-5</sup>	10 <sup>-6</sup>

LABORATORY RESULTS  
BACTERIOLOGICAL

Coliform MPN/100 ml. \_\_\_\_\_ (Confirmed Test); Fecal Coliform MPN/100 ml. \_\_\_\_\_

Fecal Streptococci: MPN/100 ml. \_\_\_\_\_ Other \_\_\_\_\_

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

Color (units)	Chloride	Sulfate	Other Determinations
Odor (cold)	Suspended Solids	Grease & Oil	<u>MERCURY NEG</u>
Turbidity (units)	Ash	Cyanide	
pH	Total Solids	Chromium Total	
Acidity to pH 4	Ash	Chromium Hex.	
Alkalinity to pH 4	Total PO <sub>4</sub>	Ortho - PO <sub>4</sub>	
Nitrite N	MBAS	Copper	
Nitrate N	Phenols	Lead	
Ammonia N	COD	Arsenic	
Total Kjehl. N	Iron	Zinc	

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

Field D.O.	Lab. D.O.	Seed Required: Yes No									
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75 100
BOD <sub>5</sub>											

B<sub>11</sub>

Chem-25  
Sept. 75

NEW JERSEY STATE DEPARTMENT OF HEALTH  
STREAM OR WASTEWATER ANALYSIS

12  
Time & Date Received 8/11/77  
By Labs Th386 B  
Lab. No. FS

FIELD INFORMATION

PLEASE TYPE OR PRINT  
WITH BALLPOINT PEN

Date of Collection 8-11-1977

Hour 10:15 A.M. ☒ P.M.

Composite Period GRAB Interval

Collected by MENNEL + PATTERSON

Residual Chlorine:  
Immediate

Developed

Flow Rate

Temperature

Sample No. 20636

Municipality MONROE TWP

Plant VIOLET PACKING

Stream

Location

Description and Remarks: POND (AERATION LAGOON)

RECEIVED  
SEP 16 1977

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested  
(Bacteriological)

10	1	10-1	10-2	10-3	10-4	10-5	10-6

LABORATORY RESULTS  
BACTERIOLOGICAL

Coliform MPN/100 ml. 24000+ (Confirmed Test) Fecal Coliform MPN/100 ml. 3500.  
Fecal Streptococci: MPN/100 ml. 2400+ Other

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

Color (units) <u>ND</u>	Chloride <u>64</u>	Sulfate <u>42</u>	Other Determinations
Odor (cold) <u>ND</u>	Suspended Solids <u>66</u>	Grease & Oil <u>104.0</u>	SODIUM <u>310.</u>
Turbidity (units) <u>50</u>	Ash <u>24</u>	Cyanide	POTASSIUM <u>47.</u>
pH <u>9.5</u>	Total Solids <u>1180</u>	Chromium Total <u>0.015</u>	CADMIUM
Acidity to pH 4	Ash <u>904</u>	Chromium Hex. <u>ND</u>	<u>0.002</u>
Alkalinity to pH 4	Total PO <sub>4</sub> <u>6.9</u>	Ortho - PO <sub>4</sub>	
Nitrite N <u>0.055</u>	MBAS <u>&lt; 0.3</u>	Copper	
Nitrate N <u>ND</u>	Phenols	Lead	
Ammonia N <u>4.0</u>	COD <u>360</u>	Arsenic	DIVISION OF LABORATORIES ANALYSIS COMPLETED
Total Kj. N <u>17.9</u>	Iron <u>2.8</u>	Zinc <u>0.48</u>	

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

REPORT SUBMITTED

Field D.O.	Lab. D.O.	Seed Required:	Yes	No
Sample Conc. % PLEASE CIRCLE	0.1 0.2 0.5	1.0 2.0 5.0	10	25 50 75 100
BOD <sub>5</sub>	< -	< -	137	

NEW JERSEY STATE DEPARTMENT OF HEALTH  
STREAM OR WASTEWATER ANALYSIS

12  
Time & Date Received 8/11/77  
By Labs TH 385  
Lab. No. TH 385

FIELD INFORMATION

PLEASE TYPE OR PRINT  
WITH BALLPOINT PEN

Date of Collection 8-11 1977  
Hour 11:10 A.M. X P.M.

Sample No. 20634

Composite Period GRAB Interval       

Collected by MENNEL + PATTERSON  
Residual Chlorine:  
Immediate       

Municipality MONROE TWP

Plant VIOLET PAPER

Developed       

Stream       

Flow Rate       

Location       

Temperature       

Description and Remarks: PH ADJUSTED  
AND SCREENED (EFFLUENT TO GC SA)

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested  
(Bacteriological)

10	1	10-1	10-2	10-3	10-4	10-5	10-6
----	---	------	------	------	------	------	------

LABORATORY RESULTS  
BACTERIOLOGICAL

Coliform MPN/100 ml. 24,000+ (Confirmed Test) Fecal Coliform MPN/100 ml. 24,000+  
Fecal Streptococci: MPN/100 ml. 2400+ Other       

**RECEIVED**

SEP 16 1977

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

State of New Jersey  
Dept. Environmental Protection  
Division Water Resources

Color (units) <u>ND</u>	Chloride <u>15</u>	Sulfate <u>85</u>	Other Determinations
Odor (cold) <u>TV D</u>	Suspended Solids <u>520</u>	Grease & Oil <u>67.4</u>	Sodium <u>22.</u>
Turbidity (units) <u>200</u>	Ash <u>212</u>	Cyanide	Potassium <u>60</u>
pH <u>4.5</u>	Total Solids <u>1216</u>	Chromium Total <u>9.005</u>	Cadmium <u>0.003</u>
Acidity to pH 4	Ash <u>488</u>	Chromium Hex. <u>ND</u>	
Alkalinity to pH 4	Total PO <sub>4</sub> <u>10.0</u>	Ortho - PO <sub>4</sub>	
Nitrite N <u>0.025</u>	MBAS <u>&lt; 0.3</u>	Copper	DIVISION OF LABORATORIES ANALYSIS COMPLETED
Nitrate N <u>3.5</u>	Phenols	Lead	
Ammonia N <u>11.1</u>	COD <u>1240</u>	Arsenic	SEP 12 1977
Total Kj. N <u>39.8</u>	Iron <u>8.0</u>	Zinc <u>0.75</u>	REPORT SUBMITTED

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

Field D.O.		Lab. D.O.			Seed Required:							
					<div>Yes</div> No							
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD <sub>5</sub>			<—		651	>—						



# Geraghty & Miller, Inc.

CONSULTING GROUND-WATER GEOLOGISTS AND HYDROLOGISTS

Executive Offices: Water Research Building  
44 Sintsink Drive East  
Port Washington, New York 11050  
Phone 516 843-6760 Cable WATER

Mr. Gustav Mihlebach  
Monroe Utilities Authority  
372 S. Main Street  
Williamstown, New Jersey

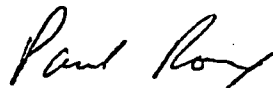
Dear Sir:

Enclosed are the water quality analyses of the samples collected from your wells in January. This work was done as a part of the Delaware Valley Regional Planning Commission study of ground- and surface-water contamination being conducted in Gloucester, Camden, Burlington and Mercer Counties.

Thank you for your cooperation.

Sincerely,

GERAGHTY & MILLER, INC.



Paul Roux

PR:am  
Enclosure



PENN ENVIRONMENTAL CONSULTANTS, INC.  
FORT PITT PROFESSIONAL BUILDING  
1517 WOODRUFF STREET  
PITTSBURGH, PA. 15220  
412-381-1133

# WATER ANALYSIS REPORT

CLIENT		PEC PROJECT NO.	
SAMPLE SOURCE TIME AND DATE		SAMPLE NO.	
DATE RECEIVED		CHEMIST	
TYPE OF SAMPLE			

BASIC PARAMETERS				NUTRIENTS				ORGANICS			
pH-Units			4.9	NO <sub>2</sub> -N mg/l				TOC mg/l			
ALK-TOT mg/l as CaCO <sub>3</sub>			12	NO <sub>3</sub> -N mg/l			3.1	COD mg/l			
ACID mg/l as CaCO <sub>3</sub>				NH <sub>3</sub> -N mg/l				BOD <sub>5</sub> mg/l			
pH <sub>s</sub> HOT mg/l as CaCO <sub>3</sub>				PO <sub>4</sub> -P ortho mg/l				CN-TOT mg/l			
COLOR Pt-Co Units				PO <sub>4</sub> -P total mg/l			.03	CN-AMENABLE mg/l			
TURBIDITY JTU				TKN mg/l				OILS-EXT mg/l			
SO <sub>4</sub> mg/l			<1	METALS				PHENOL mg/l			
SP COND. μmhos/cm				Al mg/l				MBAS mg/l			
HARD-T mg/l				Cd mg/l			<.01	BACTERIOLOGICAL			
Ca mg/l			24	Cr mg/l			<.01	TOT-COLIFORM colonies/100 ml			
Mg mg/l			7.0	Cu mg/l			.17	FECAL-COLIFORM colonies/100 ml			
Cl mg/l			13	Fe-TOT mg/l			.16	FECAL STREP colonies/100 ml			
F mg/l				Fe-DISS mg/l				ADDITIONAL			
SOLIDS				K mg/l			2.0	Co mg/l			<.01
TOTAL mg/l @ 103°				Mn mg/l				Hg mg/l			.004
TOT VOL mg/l @ 550°				Na mg/l			7.4	As mg/l			<.03
SUSP mg/l @ 103°				Ni mg/l			<.03				
SUSP-VOL mg/l @ 550°				Pb mg/l			<.03				
DISS mg/l @ 180°			95	Si mg/l							
SETTLE ml/l				Zn mg/l			.20				

REMARKS:

B.15



PENN ENVIRONMENTAL CONSULTANTS, INC.

FORT PITT PROFESSIONAL BUILDING

1517 WOODRUFF STREET

PITTSBURGH, PA. 15220

412-381-1133

## WATER ANALYSIS REPORT

CLIENT		PEC PROJECT NO.	
SAMPLE SOURCE TIME AND DATE		253-3338	
DATE RECEIVED		SAMPLE NO.	
2-17-77		25336	
CHEMIST		NAME OF SAMPLE	
RM			

BASIC PARAMETERS				NUTRIENTS				ORGANICS			
pH-Units			4.8	NO <sub>2</sub> -N mg/l				TOC mg/l			
ALK-TOT mg/l as CaCO <sub>3</sub>			1.2	NO <sub>3</sub> -N mg/l			3.7	COD mg/l			
ACID mg/l as CaCO <sub>3</sub>				NH <sub>3</sub> -N mg/l				BOD <sub>5</sub> mg/l			
pH <sub>8</sub> HOT mg/l as CaCO <sub>3</sub>				PO <sub>4</sub> -P ortho mg/l				CN-TOT mg/l			
COLOR Pt-Co Units				PO <sub>4</sub> -P total mg/l			0.2	CN-AMENABLE mg/l			
TURBIDITY JTU				TKN mg/l				OILS-EXT mg/l			
SO <sub>4</sub> mg/l			1.2	METALS				PHENOL mg/l			
SP COND. μmhos/cm				Al mg/l				MBAS mg/l			
HARD-T mg/l				Cd mg/l			<.01	BACTERIOLOGICAL			
Ca mg/l			3.3	Cr mg/l			<.01	TOT-COLIFORM colonies/100 ml			
Mg mg/l			3.4	Cu mg/l			<.01	FECAL-COLIFORM colonies/100 ml			
Cl mg/l			16	Fe-TOT mg/l			1.3	FECAL STREP colonies/100 ml			
F mg/l				Fe-DISS mg/l				ADDITIONAL			
SOLIDS				K mg/l			2.4	Co mg/l			<.01
TOTAL mg/l @ 103°				Mn mg/l				Mg mg/l			100
TOT VOL mg/l @ 550°				Na mg/l			9.8	As mg/l			<.01
SUSP mg/l @ 103°				Ni mg/l			<.03				
SUSP-VOL mg/l @ 550°				Pb mg/l			<.03				
DISS mg/l @ 180°			76	Si mg/l							
SETTLE ml/l				Zn mg/l			<.01				

REMARKS:

B1



PENN ENVIRONMENTAL CONSULTANTS, INC.

FORT PITT PROFESSIONAL BUILDING

1517 WOODRUFF STREET

PITTSBURGH, PA. 15220

412-381-1133

## WATER ANALYSIS REPORT

CLIENT		PEC PROJECT NO.	
SAMPLE SOURCE TIME AND DATE		253-3338	
DATE RECEIVED		SAMPLE NO.	
2-17-77		25337	
CHEMIST		TYPE OF SAMPLE	
BR			

BASIC PARAMETERS				NUTRIENTS				ORGANICS			
pH-Units			4.4	NO <sub>2</sub> -N mg/l				TOC mg/l			
ALK-TOT mg/l as CaCO <sub>3</sub>			10	NO <sub>3</sub> -N mg/l			98	COD mg/l			
ACID mg/l as CaCO <sub>3</sub>				NH <sub>3</sub> -N mg/l				BOD <sub>5</sub> mg/l			
pH <sub>8</sub> HOT mg/l as CaCO <sub>3</sub>				PO <sub>4</sub> -P ortho mg/l				CN-TOT mg/l			
COLOR Pt-Co Units				PO <sub>4</sub> -P total mg/l			03	CN-AMENABLE mg/l			
TURBIDITY JTU				TKN mg/l				OILS-EXT mg/l			
SO <sub>4</sub> mg/l			2.5	METALS				PHENOL mg/l			
SP COND. $\mu$ mhos/cm				Al mg/l				MBAS mg/l			
HARD-T mg/l				Cd mg/l			<.01	BACTERIOLOGICAL			
Ca mg/l			4.0	Cr mg/l			<.01	TOT-COLIFORM colonies/100 ml			
Mg mg/l			3.6	Cu mg/l			05	FECAL-COLIFORM colonies/100 ml			
Cl mg/l			6	Fe-TOT mg/l			40	FECAL STREP colonies/100 ml			
F mg/l				Fe-DISS mg/l				ADDITIONAL			
SOLIDS				K mg/l			1.6	Co mg/l			<.01
TOTAL mg/l @ 103°				Mn mg/l				Hg mg/l			<.0005
TOT VOL mg/l @ 550°				Na mg/l			3.5	As mg/l			<.05
SUSP mg/l @ 103°				Ni mg/l			<.03				
SUSP-VOL mg/l @ 550°				Pb mg/l			<.03				
DISS mg/l @ 180°			56	Si mg/l							
SETTLE ml/l				Zn mg/l			37				

REMARKS:

B17

## NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

## TABULATION OF ANALYTICAL DATA FROM PUBLIC WATER SUPPLY

Supply Monroe MUACounty GloucesterMunicipality Monroe TwpDate Collected 2/4/77Collected by B. B. B.Memo # 560Project # W-1

**BACTERIOLOGICAL ANALYSES:** Coliform organisms determined by the membrane filter technique are reported in colonies per 100 ml.  
Chlorine residuals are reported in ppm.

Sample Number	Point of Collection	Coliform Organisms		Chlorine Residual	
		Fecal	Total	Free	Total
32003	Violet Jackson Co - Raw water 123 Railroad Ave				
32004	Well # 5 - Raw water Water St				
32005	Well # 4 - Raw water Washington Ave				

**PHYSICAL - CHEMICAL ANALYSES:** Determinations are in ppm except color, odor, turbidity, and pH. Figures in parentheses are from the N. J. Potable Water Standards and/or National Interim Primary Regulations.

Sample Number		32005	32004	Sample Number	32003
Color (10)				Arsenic (0.05)	
Odor (III)				Barium (1.0)	
Turbidity (5)				Cadmium (0.010)	
Alkalinity to pH 4				Chromium <sup>+6</sup> (0.05)	
Nitrate as NO <sub>3</sub> (45)				Copper (1.0)	
Fluoride (250)				Cyanide (0.20)	
Total Diss. Solids (500)				Lead (0.05)	
TS/CAS (0.5)				Mercury (0.002)	N.D.
Total Hardness (150)				Selenium (0.01)	
Total Iron (0.3)				Silver (0.05)	
Total Phosphorus (0.05)				Phenol (0.001)	
Aluminum (50)				Endrin (0.0002)	
Phosphate (1250)				Lindane (0.004)	
Chloride (1.5)				Methoxychlor (0.1)	
Calcium (15.0)				Toxaphene (0.005)	
				2,4-D (0.1)	
				Silvex (0.01)	

RECEIVED

MAR 9 4 37

## MEMORANDUM

STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO: Robert L. Vincent thru Joseph M. Mikulka

FROM: William J. Menzel, Jr. and Paul F. Tomkavage

SUBJECT: Violet Packing Company, Monroe Township  
Gloucester County

DATE: March 15, 1977

On February 8, 1977 we conducted an investigation of the Violet Packing Company. During this investigation we met with Mr. James V. Sclafani, the President of the Company, who answered our questions and showed us around the Plant. He explained that their principal raw material is tomatoes. The tomatoes as they come in are washed and then cooked and processed into tomato sauce. The wash water and the process wastewater are treated in their pre-treatment plant before being discharged into the Monroe Township Sewerage System. The firm operates and discharges only during the months of July, August and September. The discharge is restricted to the hours of 12:00 a.m. to 4:00 a.m. The pre-treatment system consists of a bar screen, a tank for pH adjustment, a tank for the addition of alum, three primary settling lagoons, an aeration lagoon and a final settling lagoon. The primary settling lagoons have rubber liners but the liners are torn and have holes in numerous places. The aeration lagoon and final settling lagoon are unlined. Mr. Sclafani informed us that he is having problems with vandalism at the plant.

After our inspection of the Violet Packing Company we met with Mr. Gustav Mihlebach, Superintendent for the Monroe Municipal Utilities Authority. He informed us that although Violet Packing is tied into the Municipal System, they did not discharge into the system during the 1976 season, but had been discharging to a field behind their plant. This information was based on his knowledge of the Monroe M.U.A. treatment plant's flows. Mr. Sclafani, however, informed us that the only time he discharged to the field behind his plant, was when the pump motors burned out.

At the request of Richard Dalton, of Special Services, we took a sample of Violet Packing's well water. The requested parameter for this sample was for Mercury. The result of this analysis was negative.

A39:MC

MEMORANDUM

STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO: Richard Dalton

FROM: Robert L. Vincent *RW*

SUBJECT: Violet Packing Company, Monroe Township  
Gloucester County

DATE: MAR 17 1977

On February 8, 1977 Basin Personnel inspected the above referenced facility. This inspection revealed the existence of two unlined lagoons and three lined lagoons, which are in a state of disrepair, for the pretreatment of food processing wastewater prior to discharge into the municipal system. The plant is "down" now and use of these facilities is not expected to be resumed until processing starts again sometime early this summer.

I would appreciate comment from you concerning the use of the unlined lagoons for this type of wastewater.

A39:MC

Bac

# M. M. U. A. Water Supply System

11-3-76 Ltr from N.J.D.E.P. Mr. Wilford  
Re: Raw Water Tests on #4 and #5 Wells  
Mercury levels

11-12-76 Meeting with Mr. Menore  
Re: New Well, Mercury Content

Meeting with Auditor Mr. Highlinger  
Re: Financial Condition of M.M.U.A.  
General Fund

11-16-76 Meeting with John Neider, Ernie Anderson, Harry Alsentzger & C. Schultes  
Re: Cost Figures New 1000 GPM Well  
Discussed Mercury content

11-18-76 Grab samples - Raw Water from Wells #4 and #5 delivered to  
Technological Services, Camden  
Quality Lab. Audubon  
Re: Tests on Mercury  
Lead  
Zinc  
Chromium  
Copper

11-24-76 Ltr to N.J.D.E.P. Mr. John Wilford  
Re: Progress and steps taken to date regarding  
Mercury levels

11-24-76 Called Joe Miller N.J.D.E.P. Water Resources (Pollution)  
Re: Steps taken on Mercury



11-29-76 Meeting with our Engineering Firm Bob Volk Earl Masteller  
Re: Mercury in Wells and Budget Figures

12-1-76 Meeting with Mr. Hurvi  
Re: Progress report on Wells

Quality Control Laboratory, Audubon

Test Results	# 4	# 5	taken on 11-18-76
Copper	less than 0.5	0.5	
Lead	0.04	0.10 X	
Zinc	0.12	0.26	
Chromium	less than 0.03	0.03	
Mercury	<u>0.0046</u>	0.001	

12-3-76 Technological Resources, Inc. Camden

Test Results	# 4	# 5	taken on 11-18-76
Copper	0.14	0.01	
Lead	< 0.005	0.005	
Zinc	0.05	0.005	
Chromium	< 0.02	0.02	
Mercury	<u>0.0035</u>	<u>0.0021</u>	

12-10-76 Meeting with Geo Schuller Jr., Don Tanguis, Bob Volk at Schuller  
Re: Mercury in Williamstown area

Plot Wells of various depths in Area  
Map

Locate the massive concentration  
Test wells

Can new well be located at base of  
new elevated Tower

Cohansey Strata - Sand

(609) 468-3396

# VAL ASSOCIATES

Plating Analysis & Consulting  
For Electronics Industry  
Water, Air & Soil Analysis

P.O. Box 162

*Lowest  
Monro NVA*

PHILIP V. DATZ, JR.  
Chemist

748 Ridge Drive Road  
Mantua, New Jersey 08051

June 9, 1978

## Water Analysis Samples

Location - *Tower*  
~~Hubert Boulevard~~

5/26/78 Sample Taken

Mercury Filtered - .4 ppb

5/26/78 Sample Taken

Mercury Unfiltered - .4 ppb

## *Well # 4*

5/8/78 Sample Taken

Mercury - .35 ppb

5/10/78 Sample Taken (Well # 4)

Mercury - 1.6 ppb

1980

Water Supply Purveyor Monroe Municipal Utilities Authority Date March 20, 1980

Municipality Monroe Township County Gloucester

Mailing Address 372 South Main Street, Williamstown, New Jersey 08094

Administrator Mr. J.V. Dinovi, Chairman Lic. Operator: T. Gustav Mihlebach W same  
609-629-5300 (plant)

Business Phones: 609-629-4400 609-589-2976 (home)

Person Interviewed Mr. Gustav Mihlebach Position Superintendent

- Source: Location, Description, Capacity (mgd) Washington Ave. Well # 4-0.72 mgd (for emergency use only), Chestnut Street & Water Street Well # 5-0.81 mgd, Ellen Terrace & Lake Ave. Well # 6-0.60 mgd, corkery Lane Well # 7-1.14 mgd.

Est. Total Effective Cap. (mgd) 3.27

- Treatment: Wells # 4, 5, & 6-Chlorination (gas) and pH adjustment with Caustic Soda.  
Well # 7-chlorination (gas) and pH adjustment with lime.

Est. Total Effective Cap. (mgd) 3.27

- Finished Water Storage: Description, Capacity (MG) Chestnut & Water St. elevated tank-0.15 mg, Herbert Blvd. elevated tank-0.30 mg, Corkery Lane & Black Horse Pike elevated tank-1.0 mg  
Est. Total Effective (MG) 1.45

- Auxiliary Power Well # 4-gasoline engine direct drive, Well # 5-diesel engine, direct drive, Well # 7-diesel generator for well & treatment. Total 2.67 mgd

- Emergency Interconnections none  
Max Day 1.63 (10/25/79) Min. Day .124 (1/31/80)

- Plant Delivered (mgd): Maximum 1.022 (7/79) Minimum .520 (3/80) Annual Average .801

Bulk Purchase From none mgd

Bulk Sale To none mgd

- Number of Services 2,699 % Metered 100 Total Est. Population Served 9,400

- Municipalities served and est. services in each Monroe Twp

- Distribution Mains: Size 2 to 12 ins. Pressures 40 to 50 psi. Fire Hydrants yes

- Water restrictions none

- New Construction & Project # none

- Plant Chemical-Physical Analysis (type, freq.) Chlorine residuals twice a day; pH is checked daily

- Monthly bacteriological sampling of system by purveyor: No. required 10 No. taken 10

Name of Laboratory Quality Control Laboratory, Audubon, N.J.

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION  
ROUTINE INSPECTION REPORT - PUBLIC WATER SUPPLY

Water Supply Purveyor Monroe Municipal Utilities Authority Date March 20, 1980

14. Deficiencies noted:

Source 1. Well # 4-well blow-off is not protected against entry of pollution. Underground gasoline storage tank is located within 100 ft. of well. 2. Well # 4-past Brueau records indicates raw water from this well contains mercury in excess of the MCL established by the Safe Drinking Water Act.

Treatment -

Storage and Distribution 1. Distribution system contains undersized mains.

Other -

15. Sampling: Dates/Comments 3/20/80 microbiological analysis was satisfactory. Limited chemical analysis showed the finished water from Well # 7 to be corrosive. Langelier Index=-2.0

16. Adequacy of facilities	Excellent	<input type="checkbox"/>	Good	<input checked="" type="checkbox"/>	Fair	<input type="checkbox"/>	Poor	<input type="checkbox"/>	Unsatisfactory	<input type="checkbox"/>
Condition of facilities	Excellent	<input checked="" type="checkbox"/>	Good	<input type="checkbox"/>	Fair	<input type="checkbox"/>	Poor	<input type="checkbox"/>	Unsatisfactory	<input type="checkbox"/>
Operation of facilities	Excellent	<input checked="" type="checkbox"/>	Good	<input type="checkbox"/>	Fair	<input type="checkbox"/>	Poor	<input type="checkbox"/>	Unsatisfactory	<input type="checkbox"/>

Specific Comments -

Operator's Reports Satisfactory

17. Immediate Requirements\* 1. Use Well # 4 in an emergency only. 2. Use Well # 5 only when necessary to meet daily water demands. 3. Adjust pH of finished water from Well # 7 to render water less corrosive

18. General Recommendations 1. Maintain surveillance to detect leakage of gasoline into Well # 4. 2. Gradually replace undersized mains smaller than 6 in. pipe diameter.

\*NOTE: Kindly inform this Department of your actions relative to implementation of item 17 within 14 days of receipt.

Inspected: Daniel S. Mozer  
Signature

Reviewed: William J. Laffey 5/9/80  
Signature Date

DSM:el Daniel S. Mozer  
Name

Senior Environmental Engineer  
Title

William J. Laffey  
Name  
Supervising Environmental Engineer  
Title

# Monroe Municipal Utilities Authority

372 South Main Street  
Williamstown, New Jersey 08094

Gustav Mihlebach  
Superintendent  
Phone: 629-4400

RECEIVED

Jacqueline Schoenewald  
Office Manager  
Phone: 629-4400

AUG 7-80

August 5, 1980

STATE DEPT. OF ENVIRONMENTAL PROTECTION  
BUREAU OF POTABLE WATER

State of New Jersey  
Department of Environmental Protection  
Division of Water Resources  
P.O. Box CN-029  
Trenton, New Jersey 08625

Attention: Mr. Daniel S. Mozer  
Senior Environmental Engineer

RE: Inspection Report  
March 20, 1980

Dear Mr. Mozer:

In the Inspection report - under number 14 deficiencies noted:

- (1) Well #4 blow off has been screened to prevent entry of any foreign matter.
- (2) Well #4 is not being used, the monthly report to N.J. D.E.P. is marked off line.

Under number 17 Immediate requirements:

- (1) Well #4 is Off Line.
- (2) Well #5 is being used to meet the heavy daily demand.
- (3) We are increasing the percentage of lime in the slurry solution to adjust the pH.

Very truly yours,

MONROE MUNICIPAL UTILITIES AUTHORITY



GUSTAV MIHLEBACH  
Superintendent

GM/cdf  
cc: File

## NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

## TABULATION OF ANALYTICAL DATA FROM PUBLIC WATER SUPPLY

MONROE MUNICIPAL UTILITIES AUTHORITY

County LOUCELTERMunicipality MONROE TWP.Date Collected 3-14-82Collected by Brian KeaneMemo # 82-67Project # W

ACTERIOLOGICAL ANALYSES: Coliform organisms determined by the membrane filter technique are reported in colonies per 100 ml.  
Chlorine residuals are reported in ppm.

Sample Number	Point of Collection	Coliform Organisms		Chlorine Residual	
		Fecal	Total	Fees	Total
06384	WELL #6 LAKE AVE (RAW WATER)	9:45AM		0	0
06385	WELL #7, CORKERY LN.	10:20			
06386	TEST WELL, AVERY DR.	11:00			
06387	WELL #4, WASHINGTON ST.	11:40AM			

PHYSICAL - CHEMICAL ANALYSES: Determinations are in ppm except color, odor, turbidity, and pH. Figures in parentheses are from the N. J. Potable Water Standards and/or National Interim Primary Regulations.

Sample Number		06384	Sample Number	06385	06386	06387
Color (10)			Arsenic (0.05)			
Odor (III)			Barium (1.0)			
Turbidity (5)			Cadmium (0.010)			
pH			Chromium <sup>+6</sup> (0.05)			
Alkalinity to pH 4			Copper (1.0)			
Nitrate as NO <sub>3</sub> (45)			Cyanide (0.20)			
Chloride (250)			Lead (0.05)			
Total Dis. Solids (500)		10.0007	Mercury (0.002)	10.0005 K	10.0012	10.0044
ABS/LAS (0.5)			Selenium (0.01)			
Total Hardness (150)			Silver (0.05)			
Total Iron (0.3)			Phenol (0.001)			
Manganese (0.05)			Endrin (0.0002)			
Sodium (150)			Lindane (0.004)			
Sulphate (250)			Methoxychlor (0.1)			
Fluoride (2.0)			Toxaphene (0.005)			
Zinc (5.0)			2,4-D (0.1)			
			Silvex (0.01)			

RECEIVED

MAY 3 1982

Remarks: WELL #5 OUT OF SERVICE AT TIME OF SAMPLING  
WELL #4 PUMPED TO WASTE 2 HRS PRIOR TO SAMPLING

Monroe Municipal Utilities Authority

372 South Main Street  
Williamstown, New Jersey 08094

Gustav Mihlebach  
Superintendent  
Phone: 629-4400

March 15, 1982

N.J. State Dept. Environmental Protection  
P.O. Box 2809  
Trenton, New Jersey

Attention: Mr. Dan Mozer

RE: Groundwater Quality

Dear Dan:

To confirm our telephone conversation on Friday (3/12/82, 3:30 P.M.), I would like to mention the subjects discussed.

#4 Well, whether it was abandoned, capped, sealed, amount of Mercury in the water, gasoline seepage from the old Petes' Getty Gas Station and is it being used. The Well is off line, however, I pump it overboard to keep it fresh, just in case of an emergency, such as a fire. A new chlorine booster pump will be installed in the next few weeks.

#5 Well, that it is supposed to be a marginal well and only used in an emergency because the Mercury Tests years back showed 1.5 ppb, still under the E.P.A. standard of 2 ppb. The Well is now pulled for general maintenance and the repair work will be bidded within 2 weeks.

Groundwater Quality in New Jersey. An inspection of Toxic Contaminants, March 1981 by Robert K. Tucker, PhD.

I asked whether the laboratory tests performed in the aforementioned study reflected any serious problems with our wells and the statement given, that I could make to the M.M.U.A. at its meeting on Tuesday, March 16, 1982 is "The quality of our potable water shows no significant amount of pesticides, nothing to be alarmed over."

Mercury tests had been performed by Quality Control Laboratory 2/1/82 at #5 Well, Test Well on Avery Drive and #7 Well and the results were less than 0.002/mg/l at all three locations. Also the State may be down in the near future to perform an inspection.

Very truly yours,

  
Gustav Mihlebach

GM/cdf  
cc: File

RECEIVED

MAR 17 1982

N.J. STATE DEPT. OF ENVIRONMENTAL PROTECTION  
BUREAU OF POTABLE WATER  
Jacqueline Schoenewald  
Executive Director  
Phone: 629-4400

Ba

TABULATION OF ANALYTICAL DATA FROM PUBLIC WATER SUPPLY

Supply MONROE MUNICIPAL UTILITIES AUTHORITY County GLOUCESTER  
Municipality MONROE TWP. Date Collected 3-23-82  
Collected by Brian Keen Memo # 82-67 Project # W-          

BACTERIOLOGICAL ANALYSES: Coliform organisms determined by the membrane filter technique are reported in colonies per 100 ml.  
Chlorine residuals are reported in ppm.

Sample Number	Point of Collection	Coliform Organisms		Chlorine Residual	
		Fecal	Total	Free	Total
06384	WELL #6 LAKE AVE (RAW WATER)	9:45AM		0	0
06385	WELL #7, CORKERY LN.	10:20		↓	↓
06386	TEST WELL, AVERY DR.	11:00		↓	↓
06387	WELL #4 WASHINGTON ST.	11:40AM		↓	↓

PHYSICAL - CHEMICAL ANALYSES: Determinations are in ppm except color, odor, turbidity, and pH. Figures in parentheses are from the N. J. Potable Water Standards and/or National Interim Primary Regulations.

Sample Number		06384	Sample Number	06385	06386	06387
Color (10)			Arsenic (0.05)			
Odor (III)			Barium (1.0)			
Turbidity (5)			Cadmium (0.010)			
pH			Chromium <sup>+6</sup> (0.05)			
Alkalinity to pH 4			Copper (1.0)			
Nitrate as NO <sub>3</sub> (45)			Cyanide (0.20)			
Chloride (250)			Lead (0.05)			
Total Dis. Solids (500)		10.0007	Mercury (0.002)	10.0005 K	10.0012	* 0.0044
ABSTLAS (0.5)			Selenium (0.01)			
Total Hardness (150)			Silver (0.05)			
Total Iron (0.3)			Phenol (0.001)			
Manganese (0.05)			Endrin (0.0002)			
Sodium (50)			Lindane (0.004)			
Sulphate (250)			Methoxychlor (0.1)			
Fluoride (2.0)			Toxaphene (0.005)			
Zinc (5.0)			2,4-D (0.1)			
			Silvex (0.01)			

REPORT SUBMITTED

APR 20 1982

NJDOH Environmental Chemistry Laboratory

Remarks WELL #5 OUT OF SERVICE AT TIME OF SAMPLING  
WELL #4 PUMPED TO WASTE 2 HRS. PRIOR TO SAMPLING



**Sample No.**

[illegible][illegible]

☐ (22) P00885, 

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B3



1982

COMPLIANCE EVALUATION INSPECTION  
PUBLIC COMMUNITY WATER SUPPLYDATE 5/4/82

GENERAL INFORMATION	
PURVEYOR/FACILITY <u>MONROE MUNICIPAL UTILITIES AUTHORITY</u>	
FILE LOCATION <u>MONROE TWP</u>	PW-ID # <u>6811002</u>
MAILING ADDRESS <u>379 SO. MAIN STREET</u>	
ADMIN. <u>MR J.V. DINDO CHAIRMAN</u>	REQUIRED T <u>2</u> LICENSES W <u>2</u>
BUSINESS	<u>GUSTAV MICEBACK</u>
TELEPHONE # Admin.: <u>609-639-4400</u>	Licensed Operators: T <u>2</u> W <u>2</u>

FACILITY DESCRIPTION

SOURCES: descriptions, locations, capacities(mgd): WASHINGTON AVE #4. - 0.72 mgd (for emergency use, presently the well is offline.) Water Street Well #5 - 0.81 mgd. Lake Ave. Well #6 - 0.6 mgd. Carbery Lane Well #7 - 1.14 mgd.

Est Tot Eff Cap: 3.27

TREATMENT: source, type, capacities(mgd): Wells 4, 5 & 6 Chlorination (gas) and PH adjustment with Caustic Soda. Well #7 Chlorination (gas) and PH adjustment with lime.

Est Tot Eff Cap: 3.27

FINISHED WATER STORAGE: descriptions, locations, capacities(mgd): Chestnut and Water St elevated tank 0.15 mgd. Herbert Blvd elevated tank 0.30 mgd; Carbery Lane & Black Horse Pike elevated tank 1.0 mgd.

Est Tot Cap: 1.45

EMERGENCY INTERCONNECTIONS: descriptions, available gallonage(mgd): none

Est Tot Avail: —

AUXILIARY POWER: location, type, capabilities: Well #4 gasoline engine, direct drive, Well #5 diesel engine, direct drive, Well #7 diesel generator for well & treatment.

Total 2.67



NJDEP - DIVISION OF WATER RESOURCES  
PUBLIC COMMUNITY WATER SUPPLY INSPECTION



DELIVERY INFORMATION		
PLANT DELIVERED WATER (mgd, month, year) Max <u>36.521 mgd 7/81</u> Min <u>13.120 mgd 2/81</u>		Annual Average <u>27.029</u>
BULK PURCHASES (provider, mgd) <u>none</u>		
BULK SALES (customer, mgd) <u>none</u>		
NUMBER OF SERVICES <u>3500</u>		% METERED <u>100</u>
MUNICIPALITIES SERVED (est. services in each) <u>Williamstown Monroe Twp</u>		
		TOTAL ESTIMATED POPULATION SERVED <u>9460</u>
CURRENT/RECENT WATER RESTRICTIONS <u>none</u>		
NEW CONSTRUCTION (Project Numbers) <u>none</u>		
DISTRIBUTION MAINS: Sizing <u>4</u> (min) to <u>12</u> (max) Pressures <u>40</u> (min) to <u>45</u> (max) Hydrants/Flushing Program <u>semi-annual</u>		

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED
Coliform	<u>10 per month</u>	<u>10 per month</u>
Inorganics	<u>1/3 yr</u>	<u>1/3 yr</u>
Nitrate	<u>1/3 yr</u>	<u>1/3 yr</u>
Trihalomethanes	<u>N/A</u>	<u>N/A</u>
Organics	<u>N/A</u>	<u>N/A</u>
Turbidity	<u>N/A</u>	<u>N/A</u>
RADIOLOGICAL	<u>1/4 yr</u>	<u>1/4 yr</u>

NAME OF LABORATORY Quality Control Lab CERTIFICATION # 04002  
ADDRESS 243 White Horse Pike Audubon NJ

COMPLIANCE EVALUATION

SOURCE DEFICIENCIES Well #4 Mercury in water adjacent to Gasline Station.  
Well #5 not in operation. Out for general maintenance and repair after  
mercury contamination below EPA Standard and MCL established by the Safe  
Drinking Water Act  
TREATMENT DEFICIENCIES none



COMPLIANCE EVALUATION (Continued)

STORAGE AND/OR DISTRIBUTION DEFICIENCIES Distribution system contains undersized main

LICENSING, MONITORING AND/OR REPORTING DEFICIENCIES None

COMPLIANCE SAMPLING VIOLATIONS:

LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT	LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT

OVERALL COMPLIANCE RATING:

☒ ACCEPTABLE

☐ CONDITIONALLY ACCEPTABLE

☐ UNACCEPTABLE

**NOTICE:** YOU ARE REQUIRED TO INFORM THE N.J.D.E.P. IN WRITING OF YOUR ACTUAL OR INTENDED ACTIONS TO COMPLY WITH N.J.S.A. 58:12A-1 ET SEQ. VIA IMPLEMENTATION OF REMEDIAL MEASURES TO CORRECT THE DEFICIENCIES LISTED IN THIS REPORT. FAILURE TO ADEQUATELY RESPOND IN A TIMELY FASHION WILL RENDER YOU LIABLE FOR PENALTIES OF UP TO \$5,000.00 FOR EACH VIOLATION, PURSUANT TO N.J.A.C. 7:10-3.

INSPECTOR:

D. Ricciardi  
Signature

\_\_\_\_\_  
Name

E.C.I.  
Title

VI  
Region

PERSON INTERVIEWED:

G. Millbach  
Name

Asst  
Title

Monroe Municipal Utilities  
Organization

14640 14642

NEW JERSEY

DEPARTMENT OF ENVIRONMENTAL

PROTECTION

## TABULATION OF ANALYTICAL DATA FROM PUBLIC WATER SUPPLY

Supply well water County Essex  
 Municipality Monroe Twp Date Collected 6/2/82  
 Collected by Becciaile Region VI Memo # \_\_\_\_\_ Project # W- \_\_\_\_\_

**BACTERIOLOGICAL ANALYSES:** Coliform organisms determined by the membrane filter technique are reported in colonies per 100 ml. Chlorine residuals are reported in ppm.

Sample Number	Point of Collection	Coliform Organisms		Chlorine Residual	
		Fecal	Total	Free	Total
14640	Well #6 Lake Ave	1300			
14642	Well #5 Water St	200			

**PHYSICAL - CHEMICAL ANALYSES:** Determinations are in ppm except color, odor, turbidity, and pH. Figures in parentheses are from the N. J. Potable Water Standards and/or National Interim Primary Regulations.

Sample Number	14640			Sample Number	14640	14642
Color (10)				Arsenic (0.05)		
Odor (III)				Barium (1.0)		
Turbidity (5)				Cadmium (0.010)		
pH				Chromium <sup>+6</sup> (0.05)		
Alkalinity to pH 4				Copper (1.0)		
Nitrate as NO <sub>3</sub> (45)				Cyanide (0.20)		
Chloride (250)				Lead (0.05)		
Total Dis. Solids (500)				Mercury (0.002)	0.0005K	0.0005K
ABS/LAS (0.5)				Selenium (0.01)		
Total Hardness (150)				Silver (0.05)		
Total Iron (0.3)				Phenol (0.001)		
Manganese (0.05)				Endrin (0.0002)		
Sodium (50)				Lindane (0.004)		
Sulphate (250)				Methoxychlor (0.1)		
Fluoride (2.0)				Toxaphene (0.005)		
Zinc (5.0)				2,4-D (0.1)		
				Silvex (0.01)		

RECEIVED

JUN 25 1982

STATE DEPT. OF ENVIRONMENTAL PROTECTION  
BUREAU OF POTABLE WATER

REPORT SUBMITTED

Remarks

Copy to E. W. Mark 6/24/82

JUN 16 1982

NJDOH Environmental  
Chemistry Laboratory

1983

Quality Control Laboratory and Environmental Support Alliance

243 White Horse Pike  
Audubon, New Jersey 08106

"Certified Testing Laboratory"  
DEP Lab. ID# 04002

609-428-1303

609-296-7970

b. Information

Analysis #

A 958

Customer Information

Co. Monroe M.U.A.

Address \_\_\_\_\_ Phone \_\_\_\_\_

Sample drawn by Gus M Date 4/14/83 Time 1 P.M.

From #5 well

Date rec'd at lab 4/14/83 T \_\_\_\_\_

By \_\_\_\_\_

Date rec'd by Tech. \_\_\_\_\_ T \_\_\_\_\_

By \_\_\_\_\_

Date analyses started \_\_\_\_\_ T \_\_\_\_\_

Date analyses comp. \_\_\_\_\_ T \_\_\_\_\_

CHEMICAL

Test	Quan.	Meth.	Tech.	Date/Time
Acidity				
Alkalinity				
Aluminum				
Ammonia				
Antimony				
Arsenic				
Acid Extr.				
Barium				
BOD (5 day)				
Bromides				
Bismuth				
Base-Neutral Extr.				
Cyanide				
Chlorine				
Chlorides				
Cadmium				
Calcium				
Carbon Dioxide				
Cesium				
COD				
Chromium				
Cobalt				
Color				
Copper				
Density				
D. Oxygen				
Detergents ABS/LAS				
Fluorides				
Fungicides				
Hardness				
Hydrogen Sul.				
Herbicides				
Iron				
Iodine				
Iodide				
Kjeldahl N				
Lanthan				


Test	Quan.	Meth.	Tech.	Date/Time
Lead				
Lithium				
Magnesium				
Manganese				
Mercury	less than .002mg/l			
Molybdenum				
Moisture				
Nickel				
Nitrate				
Nitrite				
Odor				
Oils & Grease				
Pesticides & PCB's				
Petro Hydrocarbons				
Phenols				
Phosphate				
Phosphorus				
Potassium				
Platinum				
Selenium				
Silver				
Sulfate				
Sulfite				
Sulfide				
Sodium				
Silica				
S. Matter				
THM				
Thallium				
Turbidity				
Taste				
T. Solids				
TDS				
TOC				
Vanadium				
Volatile Org.				
Volatile Solids				
Zinc				
Zirconium				

BACTERIOLOGICAL

Test	Dil.	Total	Meth.	Tech.	Date/Time
T. Cells					
T. Collform					

Test	Dil.	Total	Meth.	Tech.	Date/Time
F. Collform					
F. Strep					

Remarks \_\_\_\_\_

  
Bruce Greenwald, Lab Mgr.

B 35

# Quality Control Laboratory and Environmental Support Alliance

243 White Horse Pike  
Audubon, New Jersey 08106

"Certified Testing Laboratory"  
DEP Lab. ID# 04002

609-428-1303 609-296-7970

b. Information

Analysis # 957

## Customer Information

Co. Monroe M.U.A.

Potable Water

Address \_\_\_\_\_ Phone \_\_\_\_\_

Sample drawn by Gus M Date 4/14/83 Time 1 P.M.

From #4 well

Date rec'd at lab 4/14/83 T \_\_\_\_\_

By \_\_\_\_\_

Date rec'd by Tech. \_\_\_\_\_ T \_\_\_\_\_

By \_\_\_\_\_

Date analyses started \_\_\_\_\_ T \_\_\_\_\_

Date analyses comp. \_\_\_\_\_ T \_\_\_\_\_

## CHEMICAL

Test	Quan.	Meth.	Tech.	Date/Time
Acidity				
Alkalinity				
Aluminum				
Ammonia				
Antimony				
Arsenic				
Acid Extr.				
Barium				
BOD (5 day)				
Bromides				
Bismuth				
Base-Neutral Extr.				
Cyanide				
Chlorine				
Chlorides				
Cadmium				
Calcium				
Carbon Dioxide				
Cesium				
COD				
Chromium				
Cobalt				
Color				
Copper				
Density				
D. Oxygen				
Detergents ABS/LAS				
Fluorides				
Fungicides				
Hardness				
Hydrogen Sul.				
Herbicides				
Iron				
Iodine				
Iodide				
Kjeldahl N				
Lanthan				

Test	Quan.	Meth.	Tech.	Date/Time
Lead				
Lithium				
Magnesium				
Manganese				
Mercury	<u>.0046mg/l</u>			
Molybdenum				
Moisture				
Nickel				
Nitrate				
Nitrite				
Odor				
Oils & Grease				
Pesticides & PCB's				
Petro Hydrocarbons				
Phenols				
Phosphate				
Phosphorus				
Potassium				
Platinum				
Selenium				
Silver				
Sulfate				
Sulfite				
Sulfide				
Sodium				
Silica				
S. Matter				
THM				
Thallium				
Turbidity				
Taste				
T. Solids				
TDS				
TOC				
Vanadium				
Volatile Org.				
Volatile Solids				
Zinc				
Zirconium				

## BACTERIOLOGICAL

Test	Dil.	Total	Meth.	Tech.	Date/Time
T. Cells					
T. Collform					

Test	Dil.	Total	Meth.	Tech.	Date/Time
F. Collform					
F. Strep					

Remarks \_\_\_\_\_

Bruce Greenwald Bruce Greenwald, Lab Mgr. **B-36**

JUN 20 1984

Monroe Township N.J.A.  
372 South Main Street  
Williamstown, New Jersey 08094

RE: Monitoring for Mercury  
P.W. - ID No.: DE11002  
Monroe Township/Gloucester County

Gentlemen:

The Department's records of Well #4 indicates that the raw water from this well contains mercury in excess of the MCL established by the Safe Drinking Water Act. It is known that Well #4 is used for emergency only, however you are directed to maintain a monthly surveillance of Well #4 and the test well on Avery Drive for mercury. This monitoring is to be reported to this Department along with the monthly operators reports.

If you have any questions concerning the above, please contact Al Anderson, the Compliance Investigator responsible for this case, who can be reached at (609) 292-1924 or by letter through this Division.

Thank you for your cooperation.

Very truly yours,

Original signed & mailed

Nick DeMeo  
Supervising Environmental  
Compliance Investigator  
Southern Region  
Enforcement Element

ASL:ral

cc: George Cassaboon, Licensed Operator  
Bureau of Potable Water  
Robert Williams, USEPA - Region II  
bcc: Region File THROUGH: DeMeo & Ricciardi  
Central File  
Al Anderson  
Marianne Montgomery



# Quality Control Laboratory and Environmental Support Alliance

243 White Horse Pike  
Audubon, New Jersey 08106

"Certified Testing Laboratory"  
DEP Lab. ID# 04002

609-428-1303

609-296-7970

## Customer Information

Co. Monroe M.U.A

Address \_\_\_\_\_ Phone \_\_\_\_\_

Sample drawn by B.G. Date 11/26/84 Time 11:33 A.M.

From Washington Ave. Well #4

Lab. Information

Analysis # D 695

Date rec'd at lab 11/26/84 1:45PM

By \_\_\_\_\_

Date rec'd by Tech. \_\_\_\_\_ T \_\_\_\_\_

By \_\_\_\_\_

Date analyses started \_\_\_\_\_ T \_\_\_\_\_

Date analyses comp. \_\_\_\_\_ T \_\_\_\_\_

## CHEMICAL

Test	Quan.	Meth.	Tech.	Date/Time
Acidity				
Alkalinity				
Aluminum				
Ammonia				
Antimony				
Arsenic				
Acid Extr.				
Barium				
BOD (5 day)				
Bromides				
Bismuth				
Base-Neutral Extr.				
Cyanide				
Chlorine				
Chlorides				
Cadmium				
Calcium				
Carbon Dioxide				
Cesium				
COD				
Chromium				
Cobalt				
Color				
Copper				
Density				
D. Oxygen				
Detergents ABS/LAS				
Fluorides				
Fungicides				
Hardness				
Hydrogen Sul.				
Herbicides				
Iron				
Iodine				
Iodide				
Kjeldahl N				
Lanthan				

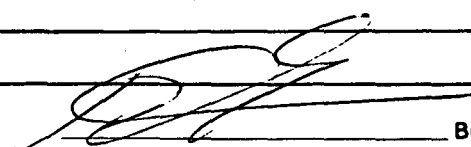
Test	Quan.	Meth.	Tech.	Date/Time
Lead				
Lithium				
Magnesium				
Manganese				
Mercury	<u>.00295</u>	<u>mg/l</u>		
Molybdenum				
Moisture				
Nickel				
Nitrate				
Nitrite				
Odor				
Oils & Grease				
Pesticides & PCB's				
Petro Hydrocarbons				
Phenols				
Phosphate				
Phosphorus				
Potassium				
Platinum				
Selenium				
Silver				
Sulfate				
Sulfite				
Sulfide				
Sodium				
Silica				
S. Matter				
THM				
Thallium				
Turbidity				
Taste				
T. Solids				
TDS				
TOC				
Vanadium				
Volatile Org.				
Volatile Solids				
Zinc				
Zirconium				

## BACTERIOLOGICAL

Test	Dil.	Total	Meth.	Tech.	Date/Time
T. Cells					
T. Collform					

Test	Dil.	Total	Meth.	Tech.	Date/Time
F. Coliform					
F. Strep					

Remarks \_\_\_\_\_



B-38

Bruce Greenwald, Lab Mgr

# Quality Control Laboratory and Environmental Support Alliance

243 White Horse Pike  
Audubon, New Jersey 08106

"Certified Testing Laboratory"  
DEP Lab. ID# 04002

609-428-1303 609-296-7970

## Customer Information

Co. Monroe M.U.A.

Address Williamstown, N.J. Phone \_\_\_\_\_

Sample drawn by B.G. Date 12/17/84 Time 11:12 A.M.

From Washington Ave. Well #4

Lab. Information  
Analysis # D 1797

Date rec'd at lab 12/17/84 1:10PM

By \_\_\_\_\_

Date rec'd by Tech. \_\_\_\_\_ T \_\_\_\_\_

By \_\_\_\_\_

Date analyses started \_\_\_\_\_ T \_\_\_\_\_

Date analyses comp. \_\_\_\_\_ T \_\_\_\_\_

## CHEMICAL

Test	Quan.	Meth.	Tech.	Date/Time
Acidity				
Alkalinity				
Aluminum				
Ammonia				
Antimony				
Arsenic				
Acid Extr.				
Barium				
BOD (5 day)				
Bromides				
Bismuth				
Base-Neutral Extr.				
Cyanide				
Chlorine				
Chlorides				
Cadmium				
Calcium				
Carbon Dioxide				
Cesium				
COD				
Chromium				
Cobalt				
Color				
Copper				
Density				
D. Oxygen				
Detergents ABS/LAS				
Fluorides				
Fungicides				
Hardness				
Hydrogen Sul.				
Herbicides				
Iron				
Iodine				
Iodide				
Kjeldahl N				
Lanthan				

Test	Quan.	Meth.	Tech.	Date/Time
Lead				
Lithium				
Magnesium				
Manganese				
Mercury	0.001	5mg/l		
Molybdenum				
Moisture				
Nickel				
Nitrate				
Nitrite				
Odor				
Oils & Grease				
Pesticides & PCB's				
Petro Hydrocarbons				
Phenols				
Phosphate				
Phosphorus				
Potassium				
Platinum				
Selenium				
Silver				
Sulfate				
Sulfite				
Sulfide				
Sodium				
Silica				
S. Matter				
THM				
Thallium				
Turbidity				
Taste				
T. Solids				
TDS				
TOC				
Vanadium				
Volatile Org.				
Volatile Solids				
Zinc				
Zirconium				

**RECEIVED**

**FEB 8 - 1985**

N.J. STATE DEPT. OF ENVIRONMENTAL PROTECTION  
BUREAU OF POTABLE WATER

## BACTERIOLOGICAL

Test	Dil.	Total	Meth.	Tech.	Date/Time
T. Cells					
T. Coliform					

Test	Dil.	Total	Meth.	Tech.	Date/Time
F. Coliform					
F. Strep					

Remarks \_\_\_\_\_

**B-39**

Bruce Greenwald, Lab Mgr

# Quality Control Laboratory and Environmental Support Alliance

243 White Horse Pike  
Audubon, New Jersey 08106

"Certified Testing Laboratory"  
DEP Lab. ID# 04002

609-428-1303 609-296-7970

## Customer Information

Co. Monroe M.U.A.

Address Williamstown, N.J. Phone \_\_\_\_\_

Sample drawn by B.G. Date 1/24/85 Time 1:51 P.M.

From Washington Ave. (Well)

Lab. Information  
Analysis # D 2320

Date rec'd at lab 2/24/85 T2:30PM

By \_\_\_\_\_

Date rec'd by Tech. \_\_\_\_\_ T \_\_\_\_\_

By \_\_\_\_\_

Date analyses started \_\_\_\_\_ T \_\_\_\_\_

Date analyses comp. \_\_\_\_\_ T \_\_\_\_\_

## CHEMICAL

Test	Quan.	Meth.	Tech.	Date/Time
Acidity				
Alkalinity				
Aluminum				
Ammonia				
Antimony				
Arsenic				
Acid Extr.				
Barium				
BOD (5 day)				
Bromides				
Bismuth				
Base-Neutral Extr.				
Cyanide				
Chlorine				
Chlorides				
Cadmium				
Calcium				
Carbon Dioxide				
Cesium				
COD				
Chromium				
Cobalt				
Color				
Copper				
Density				
D. Oxygen				
Detergents ABS/LAS				
Fluorides				
Fungicides				
Hardness				
Hydrogen Sul.				
Herbicides				
Iron				
Iodine				
Iodide				
Kjeldahl N				
Lanthan				

Test	Quan.	Meth.	Tech.	Date/Time
Lead				
Lithium				
Magnesium				
Manganese				
Mercury	<u>.0029mg/l</u>			
Molybdenum				
Moisture				
Nickel				
Nitrate				
Nitrite				
Odor				
Oils & Grease				
Pesticides & PCB's				
Petro Hydrocarbons				
Phenols				
Phosphate				
Phosphorus				
Potassium				
Platinum				
Selenium				
Silver				
Sulfate				
Sulfite				
Sulfide				
Sodium				
Silica				
S. Matter				
THM				
Thallium				
Turbidity				
Taste				
T. Solids				
TDS				
TOC				
Vanadium				
Volatile Org.				
Volatile Solids				
Zinc				
Zirconium				

**RECEIVED**

FEB 28 1985

N.J. STATE DEPT. OF ENVIRONMENTAL PROTECTION  
BUREAU OF POTABLE WATER

## BACTERIOLOGICAL

Test	Dil.	Total	Meth.	Tech.	Date/Time
T. Cells					
T. Coliform					

Test	Dil.	Total	Meth.	Tech.	Date/Time
F. Coliform					
F. Strep					

Remarks \_\_\_\_\_

B-40

Bruce Greenwald, Lab Mgr

# Quality Control Laboratory and Environmental Support Alliance

243 White Horse Pike  
Audubon, New Jersey 08106

"Certified Laboratory"  
DEP Lab. ID# 04002

609-428-1303 609-296-7971

Lab Information E 9045

Ana. # \_\_\_\_\_  
Date rec'd at lab 12/19/85 2:50pm

## Customer Information

Co. Monroe Township MUA

Address Williamstown, N.J. Phone \_\_\_\_\_

Sample drawn by A.L. Date 12/19/85 Time 1:39pm

From Well #4 - Washington Ave.

By \_\_\_\_\_

Date rec'd by Tech. \_\_\_\_\_ T \_\_\_\_\_

By \_\_\_\_\_

Date analyses started \_\_\_\_\_ T \_\_\_\_\_

Date analyses comp. \_\_\_\_\_ T \_\_\_\_\_

## CHEMICAL

Test	Quan.	Meth.	Tech.	Date/Time
Acidity				
Alkalinity				
Aluminum				
Ammonia				
Antimony				
Arsenic				
Acid Extr.				
Barium				
BOD (5 day)				
Bromides				
Bismuth				
Base-Neutral Extr.				
Cyanide				
Chlorine				
Chlorides				
Cadmium				
Calcium				
Carbon Dioxide				
Cesium				
COD				
Chromium				
Cobalt				
Color				
Copper				
Density				
D. Oxygen				
Detergents				
ABS/LAS				
Fluorides				
Fungicides				
Hardness				
Hydrogen Sul.				
Herbicides				
Iron				
Iodine				
Iodide				
Kjeldahl N				
Lanthan				

Test	Quan.	Meth.	Tech.	Date/Time
Lead				
Lithium				
Magnesium				
Manganese				
Mercury	.00177	mg/l		
Molybdenum				
Moisture				
Nickel				
Nitrate				
Nitrite				
Odor				
Oils & Grease				
Pesticides & PCB's				
Petro Hydrocarbons				
Phenols				
Phosphate				
Phosphorus				
Potassium				
Platinum				
Selenium				
Silver				
Sulfate				
Sulfite				
Sulfide				
Sodium				
Silica				
S. Matter				
THM				
Thallium				
Turbidity				
Taste				
T. Solids				
TDS				
TOC				
Vanadium				
Volatile Org.				
Volatile Solids				
Zinc				
Zirconium				

Test	Dil.	Total	Meth.	Tech.	Date/Time
T. Cells					
T. Coliform					

RECEIVED BACTERIOLOGICAL

Test	Dil.	Total	Meth.	Tech.	Date/Time
F. Coliform					
F. Strep					

Remarks \_\_\_\_\_

N.J. State Dept. of Environmental Protection  
BUREAU OF POTABLE WATER

B-41  
Bruce Greenwald, Lab Mgr

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF WATER RESOURCES  
ENFORCEMENT & REGULATORY SERVICES

BK

COMPLIANCE EVALUATION INSPECTION  
PUBLIC COMMUNITY WATER SUPPLYDATE June 27, 1985

## GENERAL INFORMATION

PURVEYOR/  
FACILITYMonroe Township M.U.A.

FILE LOCATION

Monroe Twp. / Gloucester Co.

PW-ID #

0811002

MAILING ADDRESS

372 South Main Street, Williamstown, N.J.

ADMIN.

MS Jacqueline Schoenewald

REQUIRED

T-3

LICENSES

W-3

GEORGE

BUSINESS

TELEPHONE # Admin.: 629-7586

Licensed Operators:

T-3

C-3

W-4

M. Cassabone

## FACILITY DESCRIPTION

SOURCES: descriptions, locations, capacities(mgd):

Well #4 Washington Ave 0.72 mgd;  
Well #5 Water St. 0.81 mgd; Well #6 Lake Ave 0.60 mgd;  
Well #7 Corkery Lane 1.14 mgd.Well #4 emergency use onlyEst Tot Eff Cap: 3.27 mgd

TREATMENT: source, type, capacities(mgd):

CAS chlorination at all wells.Wells 4, 5 & 6 PH adjusted with Caustic Soda, Well #7  
PH adjusted with lime.Est Tot Eff Cap: 3.27 mgd

FINISHED WATER STORAGE: descriptions, locations, capacities(mg):

Elevated Tank - Water St.  
0.15 mg; Elevated Tank - Herbert Boulevard 0.30 mg;  
Elevated Tank - Corkery Lane 1.0 mg.Est Tot Cap: 1.45 mg

EMERGENCY INTERCONNECTIONS: descriptions, available gallonage(mgd):

None

Est Tot Avail: \_\_\_\_\_

AUXILIARY POWER: location, type, capabilities:

Well #5 (Right Angle Drive) diesel  
engine/generator for well and Treatment - 50 Kw - 0.81 mgd;  
Well #7 diesel engine/generator for well and  
Treatment - 10.0 Kw - 1.14 mgd.Tot. aux. cap 1.95 mgd



NJDEP - DIVISION OF WATER RESOURCES  
PUBLIC COMMUNITY WATER SUPPLY INSPECTION



Page 3

COMPLIANCE EVALUATION (Continued)

STORAGE AND/OR DISTRIBUTION DEFICIENCIES

None

LICENSING, MONITORING AND/OR REPORTING DEFICIENCIES

None

COMPLIANCE SAMPLING VIOLATIONS:

LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT	LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT

OVERALL COMPLIANCE RATING:

☒ ACCEPTABLE

☐ CONDITIONALLY ACCEPTABLE

☐ UNACCEPTABLE

**NOTICE:** YOU ARE REQUIRED TO INFORM THE N.J.D.E.P. IN WRITING OF YOUR ACTUAL OR INTENDED ACTIONS TO COMPLY WITH N.J.S.A. 58:12A-1 ET SEQ. VIA IMPLEMENTATION OF REMEDIAL MEASURES TO CORRECT THE DEFICIENCIES LISTED IN THIS REPORT. FAILURE TO ADEQUATELY RESPOND IN A TIMELY FASHION WILL RENDER YOU LIABLE FOR PENALTIES OF UP TO \$5,000.00 FOR EACH VIOLATION, PURSUANT TO N.J.A.C. 7:10-3.

INSPECTOR:

Joseph A. Kasper  
Signature

Joseph A. Kasper  
Name

Env. Compl. Inv.  
Title

South  
Region

PERSON INTERVIEWED:

George Cossabone  
Name

Operator  
Title

Morris Tap M.U.A.  
Organization



NJDEP - DIVISION OF WATER RESOURCES  
PUBLIC COMMUNITY WATER SUPPLY INSPECTION



Page 2

DELIVERY INFORMATION

PLANT DELIVERED WATER (mgd, month, year) Max <u>1.194 June, 84</u> Min <u>.815 Feb, 84</u> Annual Average <u>920</u> , 84	
BULK PURCHASES (provider, mgd) <u>None</u>	
BULK SALES (customer, mgd) <u>None</u>	
NUMBER OF SERVICES <u>4400</u>	% METERED <u>100</u>
MUNICIPALITIES SERVED (est. services in each) <u>All Services in Monroe Twp.</u>	
TOTAL ESTIMATED POPULATION SERVICED	
CURRENT/RECENT WATER RESTRICTIONS <u>Voluntary Conservation</u>	
NEW CONSTRUCTION (Project Numbers) <u>None</u>	
DISTRIBUTION MAINS: Sizing <u>4"</u> (min) to <u>10"</u> (max) Pressures <u>45 psi</u> (min) to <u>65 psi</u> (max) Hydrants/Flushing Program <u>Yrs/Yrs</u>	

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED
PH & Cl <sub>2</sub>	Daily	Daily
Coliform	15-month	15-month
Inorganics & NA	1-3 years	1-3 yrs 10-1-84
Nitrate	1-3 years	1-3 yrs
Trihalomethanes	4-3 months	4-3 mo's 5-30-84
Organics	N/A	N/A
Turbidity	N/A	N/A
Radio	1-4 years	1-4 yrs 6-24-83
A-280's	1-6 mo's	1-6 mo's 5-30-84
SECONDARIES	1-3 years	1-3 yrs 10-1-84

recently completed

NAME OF LABORATORY Quality Control CERTIFICATION # 04002  
ADDRESS Audobon N.J.

COMPLIANCE EVALUATION

SOURCE DEFICIENCIES None

TREATMENT DEFICIENCIES None

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NEW JERSEY DEPARTMENT OF ENVIRONMENTAL  
DIVISION OF WATER RESOURCES  
ENFORCEMENT & REGULATORY SERVICES

TION

COMPLIANCE EVALUATION INSPECTION  
PUBLIC COMMUNITY WATER SUPPLY

1986

DATE JAN 5 1986

## GENERAL INFORMATION

PURVEYOR/ FACILITY <u>MANRICE TWP. MCHA</u>	
FILE LOCATION <u>MANRICE TWP. WORCESTER CO.</u>	PW-ID # <u>461102</u>
MAILING ADDRESS <u>372 SOUTH MAIN ST, WILLIAMSTOWN NJ</u>	
ADMIN. <u>MS. JACQUELINE SCHENKHALD</u>	REQUIRED T - 3 LICENSES W - 3
BUSINESS <u>629-7586</u>	T-3 W-3
TELEPHONE # Admin.: _____	Licensed Operators: <u>TC. CESSARNE</u> <u>W. CESSARNE</u>

## FACILITY DESCRIPTION

SOURCES: descriptions, locations, capacities(mgd): 4 WELLS WELL #4 (WASHINGTONAVE 0.72 MGD WELL #5 WATER ST. 0.81 MGDWELL #6 LAKE AVE 0.60 MGD WELL#7 CORKERY LANE 1.14 MGD Est Tot Eff Cap: 3.27 MGDTREATMENT: source, type, capacities(mgd): CLORINATION AT ALL WELLSWELLS 4, 5 AND 6 PH ADJUSTMENT WITH CHLORICSODA. WELL #7 LINE ADJUSTMENT OF PH.Est Tot Eff Cap: 3.27 MGDFINISHED WATER STORAGE: descriptions, locations, capacities(mg): ELEVATED TANKWATER ST 0.15 MG ELEVATED TANK HERBERT BLVD0.30 MG ELEVATED TANK CORKERY LANE 1.6 MGEst Tot Cap: 1.75 MGEMERGENCY INTERCONNECTIONS: descriptions, available gallonage(mgd): NONEEst Tot Avail: -AUXILIARY POWER: location, type, capabilities: WELL #5 DIESEL RIGHT ANGLEDRIVE SOURCE AND TREATMENT (0.1 MGD)WELL #7 DIESEL GENERATOR. SOURCE ANDTREATMENT 1.14 MGD

B-45





DELIVERY INFORMATION

PLANT DELIVERED WATER (mgd, month, year)	Max 1-12 MGD	Min 12/83 - 832 MGD	Annual Average 1981 MGD
BULK PURCHASES (provider, mgd)	NONE		
BULK SALES (customer, mgd)	NONE		
NUMBER OF SERVICES	4400	% METERED	100
MUNICIPALITIES SERVED (est. services in each)	ALL SERVICES IN MONROE TWP		
		TOTAL ESTIMATED POPULATION SERVED 13000	
CURRENT/RECENT WATER RESTRICTIONS	NONE		
NEW CONSTRUCTION (Project Numbers)	NONE		
DISTRIBUTION MAINS:	Sizing 4" (min) to 18" (max) Pressures 45 (min) to 65 (max) Hydrants/Flushing Program YES/YES		

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED
Coliform	1-5 PER MG	1-5 MG
Inorganics 8 NA	EVERY 3 YRS	10/1/84
Nitrate	EVERY 3 YRS	5/30/84
Trihalomethanes	4-5 MGS	4-5 MGS 5/30/84
Organics	N/A	N/A
Turbidity	N/A	N/A
RADIONUCLIDES	EVERY 4 YRS	6/84
SECONDARY RES	EVERY 3 YRS	10/84
DEEC	JAN - JUNE	1/85 - 5/85
CURBILITY	ONCE ONLY	10/84

NAME OF LABORATORY QUALITY CONTROL CERTIFICATION # CACC2  
ADDRESS FUDUBON N.J.

COMPLIANCE EVALUATION

SOURCE DEFICIENCIES NONE NOTED

TREATMENT DEFICIENCIES NONE NOTED



COMPLIANCE EVALUATION (Continued)

STORAGE AND/OR DISTRIBUTION DEFICIENCIES THERE ARE UNDERSIZED  
PIPIAS WITHIN THE SYSTEM

LICENSING, MONITORING AND/OR REPORTING DEFICIENCIES NONE NOTED

COMPLIANCE SAMPLING VIOLATIONS:

LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT	LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT

OVERALL COMPLIANCE RATING:

☒ ACCEPTABLE

☐ CONDITIONALLY ACCEPTABLE

☐ UNACCEPTABLE

**NOTICE:** YOU ARE REQUIRED TO INFORM THE N.J.D.E.P. IN WRITING OF YOUR ACTUAL OR INTENDED ACTIONS TO COMPLY WITH N.J.S.A. 58:12A-1 ET SEQ. VIA IMPLEMENTATION OF REMEDIAL MEASURES TO CORRECT THE DEFICIENCIES LISTED IN THIS REPORT. FAILURE TO ADEQUATELY RESPOND IN A TIMELY FASHION WILL RENDER YOU LIABLE FOR PENALTIES OF UP TO \$5,000.00 FOR EACH VIOLATION, PURSUANT TO N.J.A.C. 7:10-3.

INSPECTOR: Albert R. Nye  
Signature

PERSON INTERVIEWED: GEORGE COSSARONE  
Name

ALBERT NYE  
Name

LICENSED OPERATOR  
Title

COMPLIANCE INVESTIGATOR  
Title

MONROE TWP MUA  
Organization

SOUTHERN  
Region

# Quality Control Laboratory and Environmental Support Alliance

243 White Horse Pike  
Audubon, New Jersey 08106

"Certified Laboratory"  
DEP Lab. ID# 04002

609-428-1303 609-296-7970

## Customer Information

Co. Monroe Township MUA 0811002

Address Williamstown, N.J. Phone \_\_\_\_\_

Sample drawn by A.L. Date 1/23/86 Time 11:50am

From Well #4 - Washington Ave.

Information  
Analysis # \_\_\_\_\_

F 430 N.J. R.

Date rec'd at lab 1/23/86 2:30pm

By \_\_\_\_\_

Date rec'd by Tech. \_\_\_\_\_ T \_\_\_\_\_

By \_\_\_\_\_

Date analyses started \_\_\_\_\_ T \_\_\_\_\_

Date analyses comp. \_\_\_\_\_ T \_\_\_\_\_

## CHEMICAL

Test	Quan.	Meth.	Tech.	Date/Time
Acidity				
Alkalinity				
Aluminum				
Ammonia				
Antimony				
Arsenic				
Acid Extr.				
Barium				
BOD (5 day)				
Bromides				
Bismuth				
Base-Neutral Extr.				
Cyanide				
Chlorine				
Chlorides				
Cadmium				
Calcium				
Carbon Dioxide				
Cesium				
COD				
Chromium				
Cobalt				
Color				
Copper				
Density				
D. Oxygen				
Detergents ABS/LAS				
Fluorides				
Fungicides				
Hardness				
Hydrogen Sul.				
Herbicides				
Iron				
Iodine				
Iodide				
Kjeldahl N				
Lanthan				

Test	Quan.	Meth.	Tech.	Date/Time
Lead				
Lithium				
Magnesium				
Manganese				
Mercury	<u>.0017mg/l</u>			
Molybdenum				
Moisture				
Nickel				
Nitrate				
Nitrite				
Odor				
Oils & Grease				
Pesticides & PCB's				
Petro Hydrocarbons				
Phenols				
Phosphate				
Phosphorus				
Potassium				
Platinum				
Selenium				
Silver				
Sulfate				
Sulfite				
Sulfide				
Sodium				
Silica				
S. Matter				
THM				
Thallium				
Turbidity				
Taste				
T. Solids				
TDS				
TOC				
Vanadium				
Volatile Org.				
Volatile Solids				
Zinc				
Zirconium				

Test	Dil.	Total	Meth.	Tech.	Date/Time	Test	Dil.	Total	Meth.	Tech.	Date/Time
T. Cells						F. Coliform					
T. Collform						F. Strep					

Remarks \_\_\_\_\_

N.J. State Dept. of Environmental Protection  
BUREAU OF POTABLE WATER

B-48

Bruce Greenwald, Lab Mgr

# Quality Control Laboratory and Environmental Support Alliance

243 White Horse Pike  
Audubon, New Jersey 08106

"Certified Test Laboratory"  
DEP Lab. ID# 04002

609-428-1303 609-296-7970

Lab Information

Analysis # F 2195

Date rec'd at lab 2/27/86 4:20pm

By \_\_\_\_\_

Date rec'd by Tech. \_\_\_\_\_ T \_\_\_\_\_

By \_\_\_\_\_

Date analyses started \_\_\_\_\_ T \_\_\_\_\_

Date analyses comp. \_\_\_\_\_ T \_\_\_\_\_

## Customer Information

Co. Monroe Township MUA

Williamstown, N.J.

Address \_\_\_\_\_ Phone \_\_\_\_\_

Sample drawn by A.L. Date 2/27/86 Time 11:45am

From Well #4, Washington Ave.

## CHEMICAL

Test	Quan.	Meth.	Tech.	Date/Time
Acidity				
Alkalinity				
Aluminum				
Ammonia				
Antimony				
Arsenic				
Acid Extr.				
Barium				
BOD (5 day)				
Bromides				
Bismuth				
Base-Neutral Extr.				
Cyanide				
Chlorine				
Chlorides				
Cadmium				
Calcium				
Carbon Dioxide				
Cesium				
COD				
Chromium				
Cobalt				
Color				
Copper				
Density				
D. Oxygen				
Detergents ABS/LAS				
Fluorides				
Fungicides				
Hardness				
Hydrogen Sul.				
Herbicides				
Iron				
Iodine				
Iodide				
Kjeldahl N				
Lanthan				

Test	Quan.	Meth.	Tech.	Date/Time
Lead				
Lithium				
Magnesium				
Manganese				
Mercury	.0016mg/l			
Molybdenum				
Moisture				
Nickel				
Nitrate				
Nitrite				
Odor				
Oils & Grease				
Pesticides & PCB's				
Petro Hydrocarbons				
Phenols				
Phosphate				
Phosphorus				
Potassium				
Platinum				
Selenium				
Silver				
Sulfate				
Sulfite				
Sulfide				
Sodium				
Silica				
S. Matter				
THM				
Thallium				
Turbidity				
Taste				
T. Solids				
TDS				
TOC				
Vanadium				
Volatile Org.				
Volatile Solids				
Zinc				
Zirconium				

## BACTERIOLOGICAL

Test	Dil.	Total	Meth.	Tech.	Date/Time	Test	Dil.	Total	Meth.	Tech.	Date/Time
T. Cells						E. Coliform					
T. Coliform						F. Strep					

Remarks \_\_\_\_\_

N.J. State Dept. of Environmental Protection

BUREAU OF POTABLE WATER

Bruce Greenwald, Lab Mgr

B-49

7 1936

RECEIVED

## COMPLAINT INVESTIGATION

MUNICIPALITY: MonroeGCHD FILE #: 86364  
DWM FILE #: fileINVESTIGATOR: S. WeberDATE & TIME RECEIVED referred down by ReginaldLOCATION: Env. Services Bldg.DATE & TIME ASSIGNED 7-18-86ADDRESS: Clayton Ave ElmstownPROPERTY OWNER: Monroe Twp Bd of Ed.

MAILING ADDRESS: \_\_\_\_\_

BLOCK \_\_\_\_\_ LOT: \_\_\_\_\_

RESPONSIBLE PARTY: \_\_\_\_\_

LOCATION TELEPHONE #: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

FACILITY ID #: \_\_\_\_\_

NJ DEP REP: \_\_\_\_\_

TELEPHONE #: \_\_\_\_\_

COMPLAINANT: Mercury contamination in well contact U. Canola TELEPHONE #: \_\_\_\_\_NATURE OF COMPLAINT: Reported by Ditchhead Lab & Qual. Control Lab.

PHOTOGRAPHS TAKEN: \_\_\_\_\_ SAMPLES: \_\_\_\_\_

## FINDINGS:

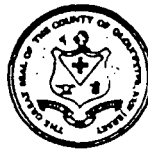
7/17/86 Investigation on site revealed well to be inside 10' deep pit in Environmental Services Bldg. Well is 2" down on angled well w/ a jet pump & galvanized water tank. Various paints & cleaning agents for school stored in building. Building is near athletic fields. Office personnel indicate a guy in Elmer maintains fields. Found a 35 gal container of product called "Sta Put 181 Weed Killer & Sterilant approx 10' from well pit - which has been opened (has spent on end) - manufactured by Sunshine Chem P.O. Box 767 Cherry Hill NJ 800-232-6576 contains Monuron trichloroacetate. Also present was Weed Killer - Green Death - Same manuf. - Water sample collected for heavy metals + mercury from outside faucet. Note - office people indicate that spray tanks not hooked up to faucet to fill. - Site was former orchard per office personnel. - Shuker

8-28-86 Spoke w/ Mr. Shapiro of Sunshine Chem. - Neither product of theirs contains mercury. SD

DISPOSITION: NPAAS 10-17-86  
Supervisor Signature & Date

Investigator Signature

ATTACHMENT C



COUNTY OF GLOUCESTER  
STATE OF NEW JERSEY  
DEPARTMENT OF HEALTH  
CARPENTER ST. & ALLENS LANE  
WOODBURY, NEW JERSEY 08096-2699  
(609) 853-3405

ROY L. BAYLOR  
FREEHOLDER

ROBERT J. SMITH, M.P.H., DIRECTOR  
DEPARTMENT OF HEALTH

Monroe Township Board of Health  
Environmental Services Building  
Academy Street  
Williamstown, NJ 08094

September 3, 1986

SUBJECT: Complaint #86364  
Individual Water Supply System  
Environmental Services Building  
Monroe Township

Enclosed is a copy of the water analysis results for the sample collected from the subject water supply on July 17, 1986. The sample was analyzed for heavy metals. The results confirm the previously found mercury concentration. The source of the mercury concentration is unknown. During our investigation the cleaning products stored in the building were noted and none indicated that they contained mercury. Additionally the company which distributes the weed killer (Sunshine Chemical) present was contacted and they confirmed that no mercury was contained in those products either.

In interviews with office personnel it was indicated that the area was an orchard in the past. It is possible the mercury originated in sprays used at that time which have now reached the water table.

Due to the excessive mercury concentration present the water should not be used for drinking or cooking. It is recommended that bottled water be provided until a permanent alternate supply can be supplied.

If you have any questions, please do not hesitate to contact this office.

Very sincerely yours,

STEVEN WEBER  
Chief Sanitary Inspector

SW/aal  
Enclosure

1686 300 1986



Three Hundred Years of Public Service



Gloucester County Dept. of Health  
August 7, 1986  
Page 2 of 2

I. Methodology

This analysis adhered to the methods described in:

- . EPA Manual of Methods for the Analysis of Water and Wastes, 1979.

II. Analytical Results

A. Metals and Bacteria

Sample Designation

<u>Parameter</u>	<u>NAC1487</u> <u>SW860717-A</u>
Arsenic, total, mg/l	<0.01
Barium, total, mg/l	<0.10
Cadmium, total, mg/l	<0.01
Chromium, total, mg/l	<0.05
Lead, total, mg/l	<0.05
Mercury, total, mg/l	0.0036
Selenium, total, mg/l	<0.01
Silver, total, mg/l	<0.01
Sodium, total, mg/l	7.5
Copper, total, mg/l	0.23
Iron, total, mg/l	0.19
Manganese, total, mg/l	0.042
Zinc, total, mg/l	<0.05

max allowable concentration  
is 0.002 mg/l

**GLOUCESTER COUNTY DEPARTMENT OF HEALTH LABORATORY**

18 E. High Street  
Glassboro, New Jersey 08028  
881-8229

**Water Analysis Field Data Sheet**

Municipality <i>Monroe</i>		Reason for sample (e.g. new well)	
Owner <i>Bd of Education</i>		Phone number	
Location <i>Env. Services Bldg</i>		Mailing Address <i>Academy St Winstown</i>	
Sample # <i>W860717A</i>	Time of Collection <i>2:00pm</i>	Date sampled <i>7/17/86</i>	Name of sampler <i>S. Weber</i>
Diagram of sample Sites (non-potable)		Sample taken from <i>outside faucet</i>	Water Temp.
		Depth of Well <i>7 2" shallow</i>	Well to Septic (type)
		Analysis requested <i>10420</i> <i>Mercury + Metals</i>	
Field Comments, sampling conditions <i>sun water 10 min</i>		Received at lab Date: <i>W. B. E.</i> Time: <i>7-21-86</i> <i>11:15</i>	Lab #  Analysis conducted Date:  Time:

**LABORATORY RESULTS**

BACTERIOLOGICAL	CHEMICAL
A. MEMBRANE FILTER (colonies/100 ml.)	1. Nitrate (NO <sub>3</sub> -N mg/l)
Total Coliforms:	2. pH
Fecal Coliforms:	3. Iron (mg/l)
Fecal Streptococci:	4. Manganese (mg/l)
B. MPN (most probable number/100 ml)	5. M.B.A.S. (mg/1 LAS)
Total Coliforms:	
Fecal Coliforms:	
Fecal Streptococci:	
C. Total Plate Count (colonies/ml)	Laboratory Director



DESCRIPTION Monroe Twp  
NJ0053597

DATE MAY 15 1984

PLEASE RETURN TO DEBBIE OCHANAS, BGWDP,  
AFTER REVIEWED/SIGNED, ETC. THANK YOU.

JOHN W. GASTON JR., P.E.  
DIRECTOR

M E M O R A N D U M

TO: Edward Londres, Assistant Director  
Division of Waste Management

FROM: John J. Trela, Chief  
Bureau of Ground Water Discharge Permits

SUBJECT: Monroe Township Sanitary Landfill  
NJPDES Permit No. 0053597

Attached please find for your review a draft permit to monitor ground water discharges for the above cited landfill, pursuant to NJPDES regulations.

We will issue the NJPDES permit according to regulations after we have received and reviewed your comments and recommendations within 10 working days of the date of this memo. If comments are not returned within 10 working days, the permit will be issued for public notice in its present form.

WQM111

Attachments

cc: (with attachments)  
George McCann  
Paul Kurisko  
Joseph Rogalski

MONROE TWP MUNICIPAL WELL #4 & #5  
MONROE TWP/GLOUCESTER COUNTY  
NEW JERSEY  
EPA # NJD980769699

REFERENCE:

I. MAPS

1. USGS QUADRANGLE MAP
2. COUNTY MAP
3. STATE ATLAS MAP
4. STATE ATLAS WATER SUPPLY MAP
5. MONROE MUA WATER SYSTEM
6. TAX MAP - WELL #4
7. TAX MAP - WELL #5
8. TAX MAP - POTENTIAL SOURCES

II. ATTACHMENTS:

- A. WELL RECORDS - NJDEP
- B. HISTORICAL SITE INFORMATION 1976 - 1986
- C. GLOUCESTER COUNTY DEPT. OF HEALTH INVESTIGATION
- D. MONROE TWP SANITARY LANDFILL
- E. DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - IRVING SAX
- F. THE MERCK INDEX
- G. PESTICIDES IN THE ENVIRONMENT
- H. MEMO TO FILE FROM FRANK FARANCA



STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
CN 402  
Trenton, N.J. 08625



## PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to the further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit.

Permit No. NJ0053597	Issuance Date	Effective Date	Expiration Date
Name and Address of Applicant Monroe Township 266 S. Main St. Williamstown, N.J. 08094	Location of Activity/Facility Monroe Township Sanitary Landfill <u>Sicklerville Road</u> Williamstown, N.J. 08094	Name and Address of Owner  SAME AS APPLICANT	
Issuing Division Water Resources	Type of Permit NJPDES Permit for Discharge to Ground Water	Statute(s) N.J.S.A. 58:10A-1 et seq. N.J.S.A. 7:14A-1 et seq.	Application No.  NA

This permit requires Monroe Township to monitor the ground water at a sanitary landfill in Williamstown by operating and maintaining 4 ground water monitoring wells according to the specific and general conditions of this initial interim NJPDES permit. The initial interim NJPDES permit is intended to establish an adequate ground water monitoring program at the above named facility. This permit is only intended to obtain ground water data to evaluate the current status and impact of this facility on ground water. It shall not be construed, nor is it intended to be an approval of any activity that the permittee has conducted which adversely effects the environment, ground or surface water quality, or threatens the public health, safety or welfare.

The issuance of this initial interim permit does not indicate that the Department has made a determination of the technical adequacy of the information available. Interim initial permits shall not be construed as, nor are they intended to be, long-term approvals; these permits are of limited duration.

The data generated through the initial interim NJPDES permit will be used by the Department to evaluate the current status and impact of existing facilities on ground water quality. It will also give the Department information to determine if there is any potential or actual threat to public health or safety or damage to the environment due to current or past practices. Based on the information generated by the issuance of this permit, the Department may require the permittee to reduce the quantity of discharge, upgrade or install additional treatment, install additional monitor wells, conduct ground water decontamination procedures or cease discharges to waters of the state.

The issuance of this initial interim NJPDES permit does not bind the Department to renew this permit, nor does it relieve the permittee of the duty to submit additional information as specified in Chapters 6 and 10 of the NJPDES regulations at the time of application renewal or as may be required by the Department prior to permit renewal. Additionally, this initial interim NJPDES permit does not relieve the permittee of any liabilities associated with public health or safety problems or environmental damage created as a result of the permittee's activities.

Documents attached hereto shall become part of this permit.

Approved by the Department of Environmental Protection

BY AUTHORITY OF:

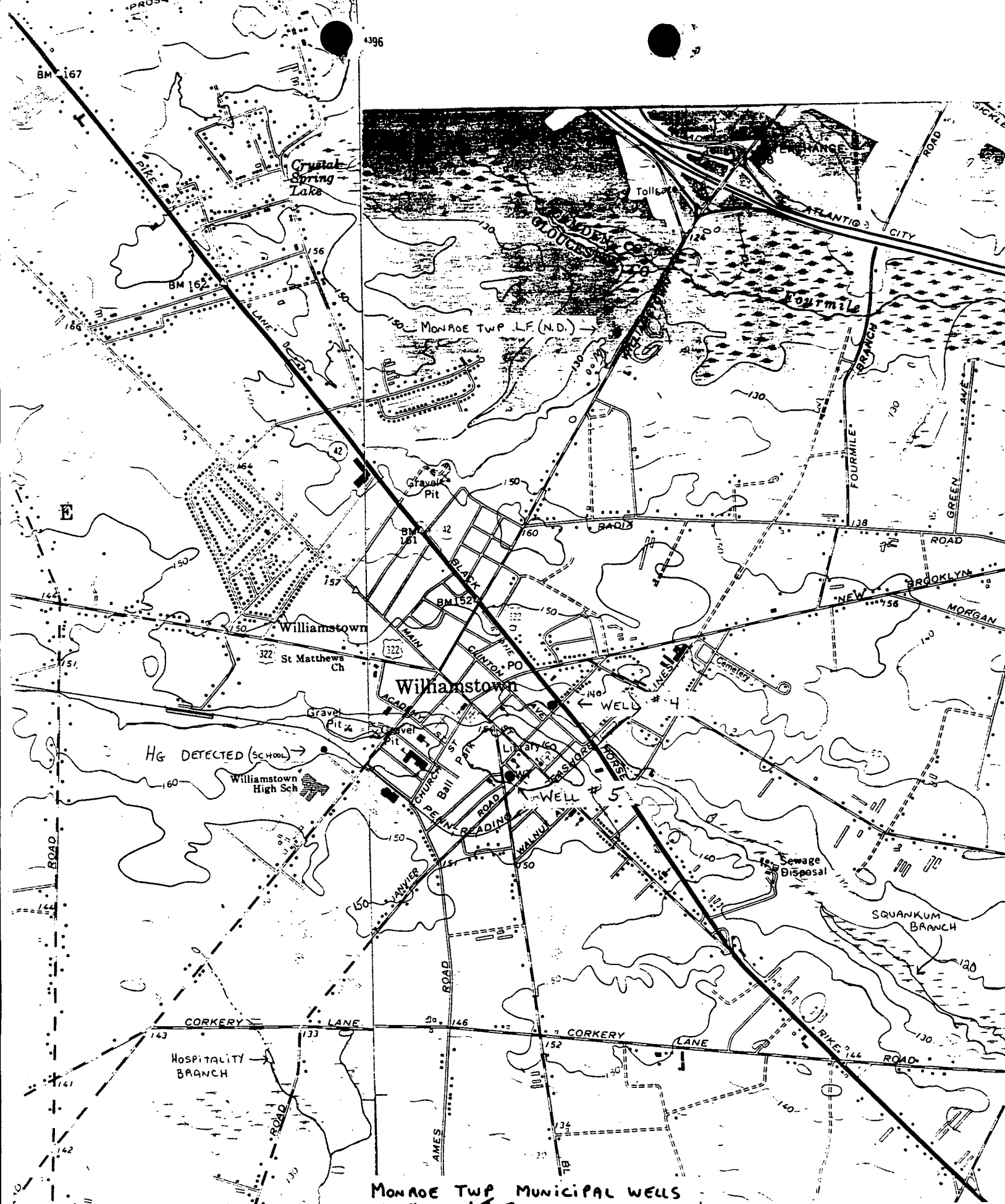
JOHN W. GASTON, JR., P.E.  
DIRECTOR, DIVISION OF WATER RESOURCES

ARNOLD SCHIFFMAN, ADMINISTRATOR  
WATER QUALITY MANAGEMENT

DATE

The word permit means "approval, certification, registration, etc."

(GENERAL CONDITIONS ARE ON THE REVERSE SIDE.)



PITMAN EAST, N. J.  
N3937.5—W7500/7.5

MONROE TWP MUNICIPAL WELLS  
#4 & #5  
MONROE TWP. / GLOUCESTER CO.  
NEW JERSEY

WILLIAMSTOWN, N. J.  
NW/4 HAMMONTON 15' QUADRANT  
N3937.5—W7452.5/7.5